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ABSTRACT

Eight papers are presented from the 1994 CAUSE conference track on professional development for information professionals in higher education institutions. The papers include: (1) "New Opportunities in Training for Information Systems Professionals," which discusses staff training at Miami-Dade Community College (Florida) (Desiree Abohasen and others); (2)"Career Insurance--Flying Above the Turbulence," which discusses strategies for surviving corporate downsizing (Shane Putman); (3) "A Funny Thing Happened on My Way to the Meeting: Humor as a Management Tool" (Jan A. Baltzer); (4) "Now That I've Empowered My Staff, What Do I Do?," which discusses the role of managers in a team environment (L. Dean Conrad and Sheila E. Murphy); (5) "Project Implementation Using a Team Approach," which reviews the experience of Lafayette College (Pennsylvania) experience with the team approach to project implementation (Sherri Yerk-Zwickl); (6) "Restructuring a Large IT Organization: Theory, Model, Process, and Initial Results," which discusses restructuring efforts at the University of Wisconsin, Madison (Mark Luker and others); (7) "Spreading Technology Around: An Investment in Tomorrow," which discusses partnerships embarked upon by Sacred Heart University (Connecticut) (Domenick Pinto and Babu George); and (8) "Strategies for Restructuring IT Organizations," which focuses on restructuring at DePaul University (Illinois)(Susy S. Chan). (Some papers contain references.) (MDM)

ED 401 863

New Opportunities for Partnering

CAUSE 94

TRACK VII
PROFESSIONAL DEVELOPMENT

Coordinator: Howard J. Ramagli

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Proceedings of the 1994 CAUSE Annual Conference

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NEW OPPORTUNITIES IN TRAINING FOR INFORMATION SYSTEMS PROFESSIONALS

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ABSTRACT

Technologies are created or enhanced with such speed, that there is little time for data processing professionals to explore all of the new and different areas in the world of information systems. However, these professionals must receive training in order to keep pace with developing technology and meet the ever increasing demands of their information systems' end-users. Our major challenge was providing this training within a limited budget.

This paper outlines how we found the time and the resources to create a training program, motivate a sometimes reluctant staff, and identify creative funding alternatives available through college and vendor partnerships.

NEW OPPORTUNITIES IN TRAINING FOR INFORMATION SYSTEMS PROFESSIONALS

MIAMI-DADE COMMUNITY COLLEGE

With an enrollment of more than 119,000 credit and non-credit students, Miami-Dade Community College is one of the largest colleges in the United States. The city of Miami is a growing international metropolis with a unique and rich mixture of cultures. The student population of the College mirrors the ethnic make-up of Dade County: 57 percent of the students are Hispanic, 21 percent are Afro-American, and the remaining 22 percent from other backgrounds.

The mission of the College has been to provide open access to an education for this very diverse population while maintaining high academic standards with a goal of excellence for all.

Miami-Dade Community College serves Dade County through its five main campuses and many outreach centers. The Computer Services Department, headquartered at the Kendall Campus, provides services to the entire College. Within Computer Services, the Computer Applications Programming Department is responsible for the maintenance and development of student and administrative software systems.

THE GROWING NEED FOR TRAINING

At Miami-Dade Community College, new or updated services and software are regularly purchased to upgrade the mainframe, personal computers, and the local/wide area networks. These items are acquired in order to streamline operations, enhance student and business services, lower operating expenses or simply to replace outdated services and products. If information professionals do not know how to use these tools properly, then they will remain unused or under-used, and the funds used to purchase them will not have been well spent. Attempting to concurrently learn and use these products is both difficult and inefficient.

Even within the programming department, new work tools are continuously being generated to automate and simplify activities. While these utilities are available to all, training is required to know when and how to use them.

Experience has shown that for an information systems department such as ours, maintaining an "up-to-date" operation over the long term requires constant training in the ever-evolving disciplines of the field. Rapid change is not just confined to software and hardware. The way in which new software is built and used also requires retraining and adjustments. Two examples of this have been the move to structured programming techniques, and the wide use of databases. Currently, object-oriented programming is gaining acceptance as a mainstream

technique. Even those programmers not working in an object-oriented language find that they are increasingly immersed in a world requiring knowledge of object-oriented concepts.

In an educational environment finding resources to commit to such training can be difficult, and Miami-Dade Community College is no different. Traditionally there has been little or no money available for such programs.

BUILD A TRAINING TEAM

In 1991, the need for training in our Computer Services area was increasing and there was no organized program or budget to address the situation. Looking for a solution, the Director of Computer Applications Programming decided to form a small group, known as the Technical Training Team (T3). The team's objectives were to ensure that training be made available to correspond to the specific software and programming engineering techniques used by our department, to motivate employees to take advantage of the training, and to keep the staff informed of new developments by making training available in new state-of-the-art industry-wide disciplines. These objectives were to be met without interfering with regular business operations and within a very small budget.

In order to succeed, it was clear that commitment from senior management was essential. In our case that included all of the Directors within Computer Services, and our project team leaders. It had to be made clear that attending training classes was an essential activity and not a frivolous waste of productive time. Our program would not have been nearly as successful if management had not been behind it 100 percent.

It was also very important that the "right" people serve on this new training team. Our Director sent an open invitation to all individuals in the department, welcoming them to participate. Everyone who responded had a genuine interest in training and was willing to work in collaboration to produce and implement dynamic programs. They enjoyed experimenting and kept abreast of new developments in the field. These respondents became team members. This free-thinking group would work on a volunteer basis, with flexible deadlines. The Director appointed an enthusiastic individual with great interpersonal skills as chairperson. We knew the people serving on this committee would either make or break the program.

Once the committee was in place, we had to assess our training needs. The department was surveyed through E-mail messages and written questionnaires, inquiring about the type of training needed. We also asked for recommendations on subjects of personal interest. From the responses it was clear that we were dealing with a variety of personalities with different interests. Tailoring a training program for this diverse clientele was going to be both complex and challenging.

MOTIVATE EMPLOYEES

Motivation is an area of primary importance. If people aren't motivated, they won't attend the training programs. To overcome this, we had to ensure that the training topics were not only relevant to the work environment, but interesting as well. The T3 made sure that all training materials such as videos and interactive computer-based training were previewed for relevance and interesting presentation. Additionally, the T3 developed a syllabus for each vendor-supplied class to ensure that these costly sessions were tailored to our specific needs.

One of the first sessions we sponsored was a pizza luncheon. Food can be a powerful motivator! The money came out of our department's coffee club surplus. The topic was "In Search of Excellence". We showed the video and carried out the theme by honoring one of our own excellent people for his efforts in assisting his peers and in training the department in a new database product. We sent out invitations, and over 25 people gave up their lunch hour to attend. The session was a smashing success.

For subsequent video training sessions we included the incentive of a raffle. Each time a staff member attended a session he/she would fill out a raffle ticket. At the end of the scheduled series we held a drawing. The more sessions attended the better the chances of winning a prize. We procured prizes by calling vendors in our area and asking them for donations. We had an array of prizes, i.e., T-shirts, gift certificates, mugs and copies of software. This reward system paid off. Many people that did not attend training sessions in the past participated in these sessions.

Certificates of participation were given for every class attended. Additionally, we awarded Continuing Education Credits for participation. Ten hours of in-house training are equivalent to one CEU (Continuing Education Unit) and four CEUs are equivalent to a 3 credit course. We grouped the training sessions so that they formed a "subject series" of at least 10 hours so that whole CEU's could be awarded. Recordkeeping has been automated using a PC database and information about all activities and attendance is included. When yearly performance evaluations are due, every supervisor is given a report which lists the CEU's each employee has accumulated. This data is used in the employee's evaluation and is also taken into consideration when an employee applies for promotion.

We have found that the timing and scheduling of these activities is an important factor in attracting optimum participation. Programs are scheduled on different days of the week and offerings are balanced between mornings, afternoons, and make-up sessions. Due to limited space or funds, sometimes it is necessary to restrict the number of people attending a training session. An announcement is made as to the fact that participation will be handled on a "first come, first served" basis. In this way everyone is given an equal chance to participate: this has eliminated the notion of preferential treatment among staff members.

These different motivational strategies have helped to achieve a high degree of participation in our training program, which in turn has improved our job performance and work skills to better serve our user community.

KEEP THE STAFF INFORMED

Communication is an essential factor in the success of any program. If the staff members were not aware of the training offered, they could not participate even if they were motivated. We advertised the events well ahead of time so people could plan for it. It is beneficial that everyone take advantage of this education. Creative flyers attracted attention. When these were followed by E-mail meeting invitations, it became a part of the employee's work calendar. Personal interaction was sometimes required to encourage attendance or to persuade a supervisor to allow the staff to participate. This extra step may have changed the way future training sessions are perceived. Distribution of the Technical Training Team's minutes which included a calendar of upcoming events also allowed the staff to plan ahead.

OFFER TRAINING WITHIN A RESTRICTED BUDGET

In the absence of a formal training budget the T3 was constantly faced with funding problems. As the financial constraints became more severe over the last few years, it became clear that reliance on traditional support accounts would no longer be sufficient. To expand our limited resources, we have ventured into partnerships with staff members, other departments within the college, and most recently with vendors.

REDEFINE YOUR TRAVEL ACCOUNTS

Our travel account had to encompass funding for both travel and training. Shrinking travel accounts sliced in half from one year to the next called for closer scrutiny of priorities. Trips with essential, clearly defined training objectives were identified and given preference. In many cases there was only enough money to send one person for training. Upon returning, this individual would conduct a training session for the rest of Computer Services. This creative financing has allowed us to provide training for our department even in the face of diminishing budgets.

MAXIMIZE AVAILABLE RESOURCES

In an effort to maximize available resources we examined our most pressing needs and matched them to the staff members individual fields of expertise. There was not always a perfect match, but with the incentive of both intrinsic and concrete rewards, these people were often willing to train others. If a particular software package offered the promise of being of value

to the department, a set of manuals was acquired. One person would learn the product in depth and provide training for other members of the department. The person's satisfaction of being viewed by his/her peers as being the "expert" in a particular skill or product provided ample motivation. The Technical Training Team (T3) made sure that the effort of these individuals was publicly acknowledged. Often their names and contributions appeared in the department newsletter which is distributed college-wide.

We were able to obtain funding to bring in a software company to provide training for the department in Natural–a fourth generation programming language. We felt we would get the most for our training dollar by scheduling an advanced class. The problem was in bringing some recently hired employees (who had no previous training) as well as other staff members who felt they needed a refresher course up to the knowledge level required by this course. Our solution was to schedule a series of weekly one hour sessions taught by one of our department "experts" on the basics of the language. We hoped to build a strong foundation for the advanced class and that the department as a whole would rise to a more productive level of expertise. Approximately 75 percent of the staff has been attending these sessions, with a "graduation ceremony" being planned for the last day of the class.

Our staff is also encouraged to participate in training provided by the Center for Teaching and Learning, an independent college facility dedicated to the professional development of Faculty, Staff, and Administrators. Its main focus is microcomputer technology in the classroom and the workplace. Through this program we have scheduled classes specifically tailored for our department in subjects such as WordPerfect, Windows, and Internet Access. At the end of a training session employees are given a certificate of participation, a copy of which is included in their personnel files.

Miami-Dade has recently entered a partnership with seven other Florida community colleges to standardize their data reporting structure to the State government in the functional areas of Finance, Student Services, Personnel/Payroll and Facilities. Using a common software product, these colleges are modernizing their basic functions and developing integrated, comprehensive systems that will meet state-mandated guidelines. Those employees involved in developing the joint systems are being exposed to new ideas and training on software packages, systems design, and Rapid Application Development techniques. Everyone is sharing newly acquired skills with colleagues, thus creating a state-wide learning network.

NEGOTIATE SOFTWARE AGREEMENTS

A review of vendor software agreements occasionally uncovered new training opportunities under favorable terms, either as offered sessions, or as follow-up training. On-site training classes were of particular interest as a greater number of people could benefit. Vendors often were willing to negotiate training sessions which targeted and met our specific needs.

In many cases "complimentary" training was available with the purchase of software. Frequently that training had a tight restriction on the number of people who could attend. Our team Chairperson and our Director became very proficient negotiators and often training was extended to the entire department.

APPLY FOR GRANTS

Special grants may be obtained from various sources within the college structure for training purposes, particularly for systems where the benefits to students can be most readily demonstrated. We were able to arrange valuable classes and make a great variety of video training tapes available to our staff. Also, through the campus' Teaching and Learning program, some Faculty/Staff Program Development monies were obtained, allowing us to provide our entire staff with additional customized courses.

ACCOMPLISHMENTS AND THE ROAD AHEAD

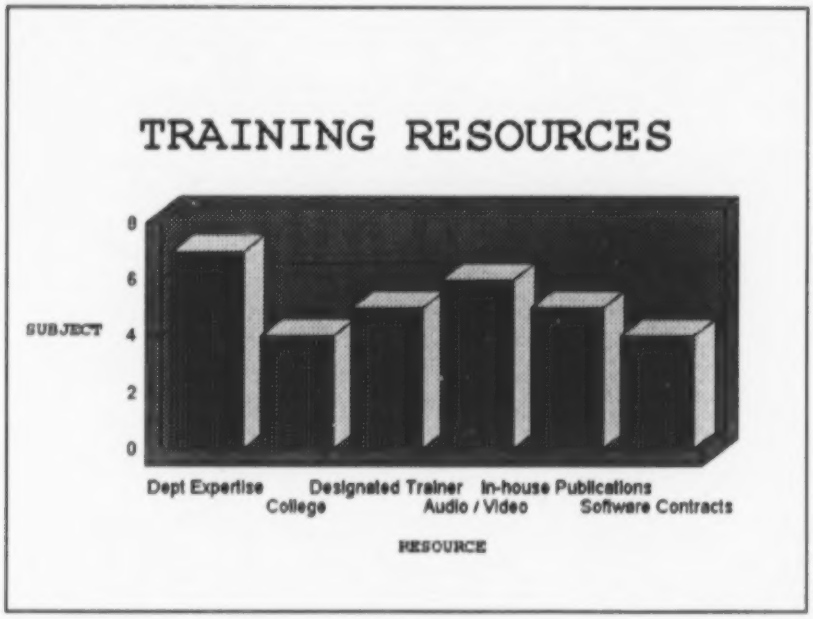
Since its inception over three years ago, the Technical Training Team (T3) has become the vehicle for gathering and disseminating information on new products and programming techniques throughout our department. All departmental reference manuals, such as utilities, macros, and software guides have been reviewed and updated. By working closely with standards and documentation committees, all current standards and guidelines are now available on the departmental network: these can be accessed at any time, even from home.

Training has been offered to over fifty professionals in a variety of subjects ranging from mainframe and PC-based software to management courses. Four one-CEU "courses" have been completed: an overview of Rapid Application Development based on James Martin's book, and three video training series (Object-Oriented Programming, Client/Server Concepts and Techniques, and Introduction to LANs). Additional training is presently being planned in the areas of Natural, ADABAS, PC applications, and INTERNET access.

The T3 was the catalyst in the inception of a new organizational unit devoted to the training of the college's user community. This facility is already in place and beginning to interact with both staff and end-users for training on systems developed within our area. Miami-Dade's mainframe computer system is the host for the Florida Community Colleges Consortium software development, described earlier. The Training Center staff will be involved in consulting with and providing training to the members of the Consortium in the use of our E-mail, on-line editors, and connections to the Miami-Dade environment.

Recently, the Computer Services area was functionally reviewed by an outside consulting firm. The quality and significance of the Technical Training Team program was confirmed by the recommendation made to the College President to establish a separate training budget in the Computer Applications Programming department commencing with the 1995-96 fiscal year.

APPENDIX


TRAINING RESOURCES
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Audio / Video
In-house Publications
Software Contracts
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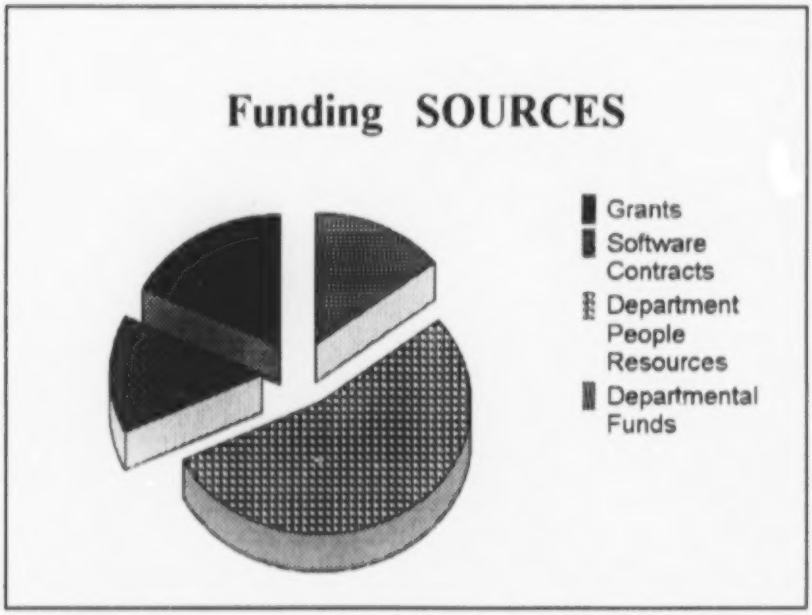
Funding SOURCES
Grants
Software Contracts
Department People Resources
Departmental Funds

ACTIVITY/RESOURCE TABLE

The following table describes some of the subjects of our training sessions and the resources which were used.

RESOURCE	SUBJECT
Internal Expertise	Time Management TRMS Outbound Paradox
External Expertise to Computer Services	Windows FIRN Access Management Courses Object-Oriented Programming
Designated Trainer	Predict Natural Construct Train the Trainer How to Handle Difficult People Rapid Applications Development
Audio/Video/Text	Creating Teamwork Omegamon II for MVS In Search of Excellence Education A/V Courses
In-House Training Publications	CAP Employee Handbook O/L Predict Users Guide Quick Reference of Programming Tools Cobol II vs. Cobol MVS Macros Availability and Usage
Training Support from Software Contracts	Strobe Natural Elite (ADABAS) Construct

(M-DCC)

CAREER INSURANCE - FLYING ABOVE THE TURBULENCE

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Abstract

This paper will allow the information systems professional to identify exactly where he or she resides on the continuum of the 'change' paradigm currently captivating the executive minds of our society. As hundreds of Fortune 1000 companies 'downsize' or 'rightsize,' the resulting tensions cannot help having detrimental effects if allowed to progress unchecked. The paper reinforces how those who deal with daily technological change must evolve using concepts explained with future-based personal development strategy models.

The 'age of specialization' is over. Executives embark on rampages requiring greater results on less money and fewer personnel, and 'closet programmers' may no longer be welcome. The primary element ensuring continuing personal growth, security, and advancement is presented with suggested means of attaining the necessary personal skill set to survive and advance amid the turbulence of the 'nanosecond nineties'.

THE WORD

Turbulent -- *(adjective) wild or disorderly; full of violent motion*
Webster's New World Dictionary

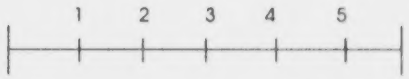
THE PROBLEM

No other adjective could describe as well the times in which we now live. With the advent of downsizing, rightsizing, and reengineering, we spend much time and effort attempting to penetrate the haze of the future and prepare accordingly. The current trend in organizational structures is an intense drive to increasingly accomplish more work with fewer resources. Unfortunately, the resources many organizations are cutting back on include their employees. On May 9 of this year Business Week reported that since 1991 approximately 624,000 employees have been released by the 25 most-reduced companies. How do we survive these 'nanosecond nineties'? As information professionals, we must dedicate ourselves to continuous, self-motivated personal growth, security and advancement. In essence, we must learn to 'fly above the turbulence.'

THE REASON

To accomplish this lofty goal, we must first understand the underlying currents that are driving today's organizational events. To protect ourselves from the chaotic environments we sometimes find ourselves, we need to understand *why* the environment is so turbulent. Once we identify the causes, we have the framework from which we derive our individual strategies to protect ourselves as much as possible. How do we judge what tools are necessary for this? My suggested answer is we must first judge the environment itself in which we are operating. The only way to match our skill set to future career requirements is to grasp what our environment as a whole will require.

FIGURE 1 - ENVIRONMENTAL TURBULENCE



Low Turbulence Characteristics	High Turbulence Characteristics
Slow change	Rapid change
Demand>>Capacity	Demand<<Capacity
Monopolistic	Chaotic Competition
Long Product Life Cycles	Short Product Life Cycles
Extrapolative	Nonextrapolative

One good way to anticipate environmental demand is to utilize the concept of 'environmental turbulence' as referring to today's global competitive environment. Turbulence usually rates on a scale of 1 through 5. The slower and more predictable the environment is, the lower the environmental turbulence. The more chaotic, complex, novel and changeable the environment is, the more we labeled it as 'highly turbulent.' The higher the turbulence level, the more flexible and changeable an organization must be to survive and flourish. The primary characteristic of high turbulence environments is that of being nonextrapolative, or different from the present.

FIGURE 2 - THE MATCHED ORGANIZATION

1 2 3 4 5 TURBULENCE
1 2 3 4 5 STRATEGIES
1 2 3 4 5 MANAGERS
1 2 3 4 5 CULTURE
1 2 3 4 5 STRUCTURE
1 2 3 4 5 SYSTEMS
1 2 3 4 5 TECHNOLOGY
1 2 3 4 5 CAPACITY

The higher education field has a turbulence level approaching level 4. As seen in Figure 1, the environment is one of rapid change, capacity outpacing demand, and aggressive, competition. The necessary conclusion is that organizations must match their internal structure and capabilities to the environment in order to meet future demands. In Figure 2, we see exactly what factors to examine for determining the future potential of the entire organization.

As the environment moves up the turbulence scale toward level 5, the resulting changes pressure organizations to adjust accordingly. However, the focus of this paper is on the final category, capacity. Specifically, the focus is the capacity and capabilities of the most important resource -- the people.

Today's roles and requirements of Information Systems (I.S.) personnel have evolved to a much higher level of active organizational participation. The demands on us are greater than ever before. Once, the majority of I.S. staff communicated with a direct supervisor, manager, or technical liaison only. Today, entry-level programmer/analysts must be able to interact with all organizational levels from data entry clerk to CEO. As the demands of our career change, so must we.

As an organization must increase its internal turbulence level to match that of the external environment, so must each employee make the effort to match their *personal*

turbulence level to the same standard. As the environmental flux around us increases, it is imperative that we develop the flexibility and adaptiveness to survive. Career advancement will truly become survival of the fittest. Only by matching *our* individual turbulence levels to the environment may we aid our quest for continued advancement and success.

THE RESPONSE

"We want every person to be a businessperson."

Ralph Stayer
CEO, Johnsonville Foods
Inc., November 1990

In the same way that your institution must gauge the future and adjust, so must each of us read the future and prepare ourselves accordingly. Today's technical personnel must develop a 'multi-stock portfolio' of skills and strengths. Those familiar with investments know that a portfolio consisting of stocks that are unrelated carries the least amount of risk. In addition, developing varied stocks of personal skills lessens your risk of an employment 'market crash.' As mentioned before, the future will become more nonextrapolative. The career development strategies handed to us in the past will no longer meet the requirements of our environments. The ritualized 'ladder of success' personnel development programs used by many organizations do not take into account the changing demands on employees. In addition to job-specific training and education (hard skills), there needs to be an instilling of more general strengths that applies to any position (soft skills). Listed below are these characteristics of survival in high turbulence environments.

Identifying -- anticipating needs of your organization. Become affiliated with your firm's management elite, or those 'in the know.' Learn what your firm's directions are and examine your areas of operations to insure that your activities are not in conflict. Being able to identify future trends could possibly be our greatest aid to advancement.

Preparing -- having answers ready before the questions. This means reading and research. Be aware of current trends not only in the technical arenas but also your industry. This aids in identifying future opportunities also. Live by strategic planning. Never begrudge the time -- the job you save may be your own.

Marketing -- where most highly technical people fall by the wayside. To advance, you have to enjoy the limelight, accept scrutiny, and be visible. Most of all, avoid the 'us vs. them' syndrome. Alienation does not win friends and influence people, at least positively. When dealing with resistance or apathy to your ideas, always relate your plans and projects to achieving organizational goals. This ensures the success of the entire enterprise and identifies you as a team player.

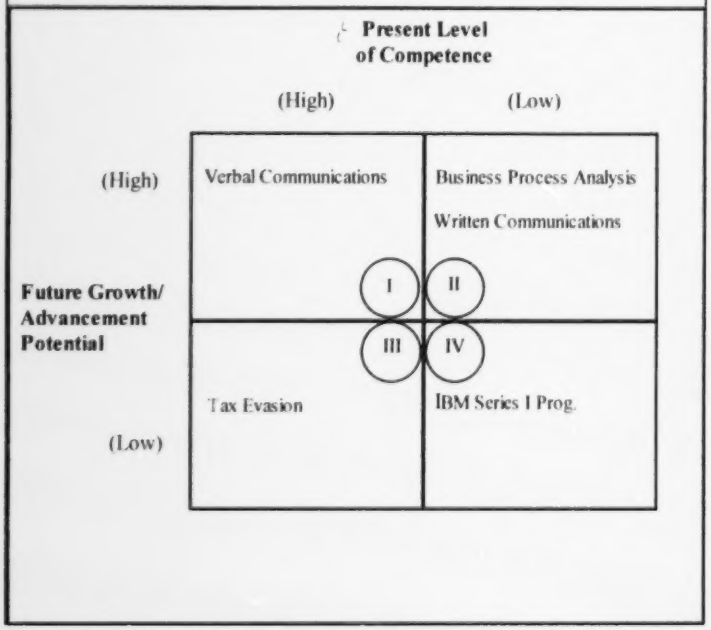
Facilitating -- taking our fabulous ideas and making them happen. You will have to deal with people constantly -- messy, emotional, illogical, and seemingly endless series of interpersonal struggles. However, in any organization, the only way to major accomplishments is through groups of people. The better we work with others, the more we will accomplish.

Implementation -- As you climb the career ladder, daily routine moves from task-based to project- and goal-based. Fortunately, if we achieve the skills discussed here, the vision necessary to make the transition is almost a side-effect.

OK, now we have our goals and direction. Where do we go from here? How we take these five characteristics of survivors and incorporate them? How do we weigh our present strengths and skills in relation to what see needed in the future?

One simple yet highly informative method uses a variation of the Boston Consulting Group (BCG) product decision matrix. The matrix is composed of two axes, the X-axis for the present level of competence, and the Y-axis for the potential future reward for acquiring or possessing that skill. Figure 3 gives a hypothetical example of this skill chart.

FIGURE 3 - Skillset Decision Matrix



This overview gives us a visual aid to see the strengths and weaknesses of our individual skill sets. The skills we have that are charted in Quadrant One are money in the bank. These skills are attractive for the future and we have developed the necessary level of expertise. Those skills that fall in Quadrant Two are those that will require further investment. These skills are what we need to align our personal goals to acquiring. The items in Quadrant Three are those that need no more investment of time or training. We have become highly proficient, but there is a declining need for these particular tools. The items in Quadrant Four are those with no particular place in the future and unworthy of our time or resources. As we view each personal strength or skill in terms of its future growth and advancement potential, directions for continuing professional development tend to become obvious and imperative.

THE ACTION PLAN

Not intimately knowing your organization's business limits advancement and long-term survival may be questionable. The simplest way to expand your horizon is acquiring a variety of literature dealing with business topics, both general and industry-specific. Beyond that, I recommend entering graduate school or other course of study for an MBA or equivalent. You will expose yourself to new ideas, methods, and acquire the vocabulary necessary to communicate with many highest level administrators.

Become a communications expert. Managers spend up to 90% of their time communicating. Learn to speak confidently and well, if necessary with speech training. Take a business writing course. Learning to say much in few words is invaluable in communicating with a busy executive. Unless you communicate your ideas, enthusiasm, and convictions effectively, your efforts will be hindered if not halted.

Consider cross-training with other organizational functions. Know the core activities of your business, even if it means being 'in the field' for a time. Our positions on campus frequently require intensive interaction with the faculty. What better way to build relationships and enhance rapport than teaching a few classes? A primary guideline for interpersonal communications is the development of rapport among the party or parties trying to communicate. Sharing experiences as well as vocabulary enhances the clarity of these communication channels.

SUMMARY

The world continues to change. However, the very character of today's changes is different from those of 20 or even 10 years ago. No longer are organizations progressing along an 'evolutionary' path. Today's universities and colleges are moving along 'revolutionary' paths. The institution of higher education of the future will bear little resemblance to the staid halls of learning from which we graduated. As competition for students becomes more intense, so will the pressure on university administrations to become more aggressive and innovative. Especially among the smaller public and private universities, there will be a continued drive to provide high quality services to the student with severely limited resources. This competition will permeate the entire organization. The only question will be involve whether or not we have what it takes to compete, survive, and flourish. Only by developing the traits of the survivors will our potential for success be insured. Only by actually developing ourselves above and beyond today's expectations will we be ready to meet and beat the future and the turbulence sure to come.

SUGGESTED RESOURCE LIST

Communications

How to be a Great Communicator: In Person, on Paper, and on the Podium Nido Qubein, Nightingale Conant, Chicago, Ill., (800)323-5552. *Tape Series*

Business Writing for Results, Fred Pryor Seminars, Pryor Resources, Shawnee Mission, KS., (800)255-6139. *Seminar Materials*.

Business Communications Workbook, Raymond A. Dumont, Little, Brown and Company, Boston, Mass.

McGraw-Hill Guide to Effective Communications for MIS Professionals, Larry M. Singer, McGraw-Hill, Inc., New York, NY.

Change Management

Managing Change, Todd D. Jick, Richard D. Irwin, Inc., Homewood, Ill.

A FUNNY THING HAPPENED ON MY WAY TO THE MEETING: THE USE OF HUMOR AS A MANAGEMENT TOOL

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ABSTRACT

Budget cutbacks, potential and actual layoffs, changing technology and the constant demand to increase productivity and quality while resources are diminishing, all add to the everyday stress level of information technology departments. In this environment, it is important that IT professionals develop skills to avoid burnout as individuals, and strategies for creating an environment in the IT organization that is motivating, healthy and humane. This session will focus on the use of humor as a set of learned skills that relieve tension in the face of relentless change and enable IT managers to improve communications, resolve conflicts, increase productivity, and enrich the overall culture of the organization.

A FUNNY THING HAPPENED ON MY WAY TO THE MEETING: THE USE OF HUMOR AS A MANAGEMENT TOOL

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In their book entitled *Lighten Up: Survival Skills for People Under Pressure*, C.W. Metcalf and Roma Felible define humor as:

> ". . .a set of survival skills that relieve tension, keeping us fluid and flexible instead of allowing us to become rigid and breakable, in the face of relentless change."(1)

If we view humor in this way, we come to understand several very important concepts. First, a sense of humor is not about jokes or joke telling. It is a skill set. Secondly, since humor is a set of skills, it is not innate. We are not born with a sense of humor. As a result, the set of skills that we call humor can be developed or learned on both a physical as well as a psychological level.

IMPORTANCE OF HUMOR AS A SET OF LEARNED SKILLS FOR THE INDIVIDUAL

Psychoneuroimmunology or PNI is the medical discipline that studies the connection between psychology, neurology and immunology. PNI studies have shown that the brain, on a biochemical level, cannot tell the difference between events that are real and events that are imagined. In addition, PNI research indicates that "prolonged stress may cause not only a direct attack on the organs [of the body]..., but may also [have] a direct and measurable effect on the immune system." (2)

The reason for the connection between prolonged stress and the human physical condition harkens back to the days of our prehistoric ancestors and what has been called the "flight or fight" syndrome. Medical research indicates that when the brain perceives a threat, the following physical reactions occur:

(1) Adrenaline amounts rise to give the body more fuel and energy;
(2) The pupils of the eye dilate so we can see better;
(3) The mouth goes dry;
(4) Digestion temporarily stops so that more blood can

flow to muscles;
(5) The neck and shoulders tense up to better ward off blows;
(6) Breathing rate increases to send more oxygen to muscles;
(7) The heart beats faster and blood pressure rises;
(8) Perspiration increases to cool the body;
(9) The liver releases glucose for energy;
(10) The spleen releases stored blood cells and cortisol, a blood clotting agent; and
(11) Lactic acid rushes to the muscles for added strength.

In prehistoric times when the tiger was at the door of the cave and our ancestors correctly perceived a threat to life, this physical reaction was appropriate. The biochemical changes in the body enabled them to stand and fight the tiger or flee. Regardless of whether they fought and won or fled, they used the physical strength achieved through the body's reaction to threat, and then relaxed when the situation was over so that their bodies returned to "normal" until the next threat to life occurred.

Today, our bodies still have the same biochemical reaction to "perceived threats" or stress. Unlike our ancestors, however, we don't use all of the physical strength provided through the flight or fight mechanism when are bodies are aroused, and continued exposure to stress can be extremely damaging to our physical and psychological well being. The results of prolonged periods of biochemical stimulation are often real physiological problems such as ulcers, chronic muscle tension, respiratory problems, chronic blood pressure problems and immune system dysfunction.

- There are five "antidotes" which can be prescribed to help the individual develop a set of humor skills to counteract the physical and emotional impact of stress.

Rx #1: Learn To Overcome Fear of Failure on the Physical Level.

As Metcalf and Felible point out, each of us dreads appearing foolish because "foolishness can lead to ridicule, and ridicule, to loss of status or--in the most terrifying extreme--exile."(3) No one wants to look foolish, but no one ever died from looking foolish either. If we can learn to stop worrying about how we appear to others, we can come a long way toward minimizing the day-to-day stress that fills our lives. Fostering the ability to laugh at ourselves when we do foolish things and to even purposely make ourselves look foolish when it is "safe" to do so will help us to alleviate the stress that comes from this fear.

Rx #2: Learn to Laugh.

Martin Luther has been quoted as saying "If you're not allowed to laugh in Heaven, I don't want to go there." C.W. Metcalf, Norman Cousins and others who have documented the "healing power" of laughter would likely agree because their research indicates that smiling and laughter are physically, as well as emotionally, beneficial. Laughter decreases heart rate, lowers blood pressure, increases blood flow to the brain, and releases endorphins - the natural pain killer produced by the body to stimulate the body's immune system. The odd thing about laughter is that we tend to "out grow" it as we get older. Children laugh much more often than adults. We can "relearn" the skill of laughter, however, through techniques such as thinking of things that made us laugh in the past, renting comedy videos or going to the movies, reading funny books, etc.

Rx #3: Learn to See the Absurdity in Difficult Situations.

Most of us realize that, scientifically, we are NOT at the center of the universe. Yet, many of us react to situations in our personal and professional lives as if we WERE at the center--as if everything in the world revolved around our abilities to complete projects on time, to say the right things to the right people, or to perform as others would have us perform. If each of us can develop the ability to see that such an egocentric view of the world is really absurd, then we can come to realize that the consequences we often fear are blown out of proportion, thus reducing the stress we feel.

Rx #4: Learn to Take Yourself Lightly and Your Seriously

As Elsa Maxwell so aptly said, "Laugh at yourself first, before anyone else can." Most adults have been programmed over the years to take themselves way too seriously. We each grew up hearing things like: "When the going gets tough, the tough get going"; or "Grin and bear it"; or "No pain, no gain"; or, my all time favorite, "Wipe that smile off your face and get serious." To survive in these stressful times, each of us needs to learn to separate ourselves from our work or other stressful situations and "lighten up." We need to learn that we can be serious ABOUT our work without taking ourselves so seriously.

Rx #5: Develop a Disciplined Sense of Joy in Being Alive.

This prescription is closely related to our ability to take ourselves lightly while taking our work or other things around us seriously. When we take ourselves too seriously, we can become depressed and inwardly focused. While there is definitely such a thing as clinical depression, most of us do not suffer from it. What we suffer from is really a "negative" attitude. When we get "down" or depressed because

of situations that appear to be outside of our control, we need to remember that happiness is a conscious choice, not an automatic response. We need to remember that, even when it appears that we have no choice, we always of the choice of attitude.(4)

C.W. Metcalf and other humor specialists suggest a number of "tools" for individuals to increase individual personal sense of humor. Among these tools are:

* *Books and tapes* - Find authors, humorists, or movies that make you laugh and then read or view their work on a regular basis. Keep some of these books or tapes in your office so that you can reference them as you need to.

* *Draw the line* - Find ways in which to both physically and mentally separate yourself from your work or your office for breaks or at the end of the day.

* *Joy list* - Compile a list of things, events or people that bring joy to your life and write them down. Keep the list with you to reference when the stresses of work or life make you forget that there are many things that make you laugh, smile or just feel good.

* *Humoraerobics* - C.W. Metcalf has coined this term for "physical and mental exercises that enhance humor skills."(5) Making faces, silly noises, peculiar gestures, etc., are part of the humoraerobics exercise plan.

* *Photo funnies* - Spend a couple of dollars and have your pictures taken in one of those instant picture booths that are still to be found in Penny Arcades and other amusement areas. Close the curtain behind you and make the craziest faces you can think of. Stick the pictures in your briefcase or desk drawer for "future reference." No one else needs to see these pictures, but you'll smile every time you think about the experience.

HUMOR AS A TOOL FOR MANAGERS IN THE IT ENVIRONMENT

> "If you are not having fun doing what you are doing, chances are you are not doing the best you can do. And the same is true for others. . . Every moment cannot be fun, but the overall experience can be."(6)

Fun is not, nor should it be considered, a "perk." More and more companies are realizing that there are actually business reasons for incorporating the concept of fun into the way in which they do business. Southwest Airlines, for example, derives their organizational culture from the following three core values:

> "Value 1. Work should be fun... it can be play enjoy it.
>
> Value 2. Work is important...don't spoil it with seriousness.
>
> Value 3. People are important...each one makes a difference."(7)

At Southwest Airlines, a sense of humor and caring are criteria for employment.

Fun in the workplace can be beneficial to the "bottom line" for a number of reasons. First, fun can be used to avoid or manage conflict. In his book, The Light Touch, Malcolm Kushner says that humor can

> "provide a velvet glove around the iron fist of authority. A request for cooperation phrased in a funny way--a humorous hint--can eliminate resistance and resentment caused by direct order. Humor cushions the blow." (8)

When conflict does arise, Kushner says that

> "humor can buy time until a solution presents itself . . . .Humor [is] particularly useful as an 'interrupter' - a message designed to prevent assertive behavior from becoming aggressive."(9)

Secondly, fun can be used to motivate employees and improve productivity. James M. Kouzes & Barry Z. Posner provide support for this theory in their book The Leadership Challenge: How to Get Extraordinary Things Done in an Organization. They state:

> "Systematic studies indicate that people communicate their expectations primarily by the character of the socioemotional support and encouragement that they provide people. Treating people in a friendly, pleasant, and positive fashion and being attentive to their needs produce increased performance because of the favorable effect on employee motivation."(10)

Howard R. Pollio from the University of Tennessee at Knoxville has done studies on humor and increased productivity. His studies indicate that if employees are having a good time they will "stick with it longer." He states that "if people enjoy their jobs, have fun, and laugh together, they'll probably form a tightly knit group that works well together."(11) People simply work harder and are more productive when they are having fun.

Third, fun in the workplace helps to improve morale. As Kushner states, "Humor makes people step back and say, 'It

ain't so bad. We may have problems in our work, but we can handle them.'"(12) Shared laughter builds team spirit and, when disaster or crises strike, the ability to laugh rather than cry puts the disaster into perspective, allowing people to continue being productive.

Finally, fun in the workplace provides relief from stress for the entire workforce just as it does at the individual level. Where people can release tension through practical jokes, celebrations, laughter, and play, they can remain flexible and fluid to meet the stressful challenges that are becoming more and more a daily fact of work life.

Tools for introducing humor into the workplace and maintaining it there include:

* *Celebrations* - Find ways to celebrate the joy of working in your institution. Invite employees to identify the types of events they would like to celebrate and their preferred methods of celebration. As you introduce celebrations to the organization, it is important to remember that you must celebrate often, and do not stop celebrating when things "get tough." It is during the touch times that it is even more important to celebrate the small victories that indicate success and forward momentum.

* *Rewards and recognitions* - Find people doing "something right" and reward them for it. People do what they are rewarded for doing and rewards/recognitions can be fun. Again, it is important to involve employees in the development of reward and recognition programs so that such programs are meaningful to them.

* *Self-effacing humor from the top* - Good leaders have a sense of humor and know how to use it. In fact, the "ideal boss" has been described as "demanding and caring, challenging and supportive, intense and playful." (13) Humor can only work in an organization when the leadership (at all levels) is willing to lead the charge and to demonstrate that it is okay to have fun at work.

* *Visual demonstrations of humor* - One of the easiest ways to send the message that it is okay to have fun at work is through visual displays of humor. Funny posters, cartoons, and office decorations can be used to telegraph the message to employees that the workplace need not be dull or boring.

CONCLUSION

Metcalf and Felible assert that:

> "Humor can help you thrive in change, remain creative under pressure, work more effectively, plan more

> enthusiastically, and stay healthier in the process. But the skills have to be practiced until they're a habit, a part of your routine. . . . Humor is a set of skills, [and] it is also an outlook on the world."(14)

Despite the fact that most of us, as individuals, would agree that we work harder and feel better when we are having a good time, many IT managers and CIO's don't make the effort to ensure that the IT workplace is full of fun. There are several reasons why this may be so. Some IT people may feel that it is "unnatural" for them to display a sense of humor at work. Many may feel that it would somehow diminish their stature as "executives" in the organization, or that they have too many "important" things to do to worry about inserting fun into the work environment. Still others may doubt the real bottom line benefit of fun in the workplace.

In this era of budget cutbacks, potential and actual layoffs, changing technology and the constant demand to increase productivity and quality while resources are diminishing, IT leaders can ill afford to ignore any approach or technique that will help to reduce stress and increase productivity in the workplace. We have to abandon the belief that our problems can only be solved if we just "get tough enough, work a little harder and get really serious." It costs relatively nothing to reintroduce fun into our daily work environments, but the payoffs can be astronomical.

Footnotes:

1. C W. Metcalf and Roma Felible, *Lighten Up: Survival Skills for People Under Pressure* (Reading, Mass: Addison-Wesley Publishing Company, Inc., 1992) p. 9.

2. Ibid., p. 49.

3. Ibid., p. 45.

4. Judith M. Knowlton, as quoted by Ann Wilson Schaef. Meditations for Women Who Do Too Much (San Francisco: Harper & Row, 1990) p. 118.

5. Metcalf and Felible, p. 52.

6. James M. Kouzes & Barry Z. Posner, *The Leadership Challenge: How to Get Extraordinary Things Done in an Organization,* (San Francisco: Jossey-Bass, 1987) p. 53.

7. J. Quick, "Crafting Organizational Culture: Herb's Hand at Southwest Airlines," *Organizational Dynamics,* Winter 993, 45-56.

8. Malcolm Kushner, *The Light Touch* (New York: Simon & Schuster, 1990), p. 116.

9. Ibid., p. 114.

10. Kouzes and Posner, pp. 243-244.

11. Howard R. Pollio as quoted in Kushner, p. 128

12. Kushner, p. 124

13. Kouzes and Posner, p. 262

14. Metcalf and Felible, p. 5.

Now That I've Empowered My Staff, What Do I Do?

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Abstract

What is the impact on managers of implementing a teams environment? The usual line on teams is that the manager stops making decisions, stops giving orders, and becomes more of a "coach." Unfortunately, this coaching concept is typically not very well defined. Few reasons are provided as to why a manger might see this as a beneficial career move! In this paper, we will explore a new role definition for a manager as team "advisor" or "advocate" in order to give a manager facing the prospective deployment of teams some sense of what she/he may actually be *doing* in the new teams environment and how that is a desirable thing.

Introduction

There is a management revolution gaining momentum in this country and its name is teams. The wholesale downsizing of the private and public sectors over the past several years has served as a sort of shock therapy to the workforce. Job security is a thing of the past. Employee loyalty has been shattered. Workloads are up dramatically as we all have to do more with less. Opportunities for advancement are limited. Our organizations have been forced to re-examine their basic goals and operating principles in order to compete in a global economy and keep the workforce effective and productive.

Much has been written about this state and several movements have emerged to help address these challenges, including the quality movement spawned by Dr. W. Edwards Deming[1] and its Total Quality Service off-shoot, the stewardship movement (Block), the entrepreneurial management movement (Osborne and Gaebler), and the reengineering movement (Hammer and Champy). One of the common threads that runs through all these is the need to get the most out of the workforce by establishing empowered work teams. Many managers believe that "teams" merely represents the latest management fad and will pass along with all the others leaving the status quo. We believe this view to be short-sighted at best and self-serving at worst.

Much has also been written about teams; most of it focusing on the effectiveness gains that are possible, the quality improvements that can be made, the reduced overhead and competitive advantages that can result, and quality-of-life gains for the work force. However, what about the impact on managers?

The literature generally focuses on managers as expendable, no longer needed in the new empowered team workforce. In fact, management is routinely identified as the largest single obstacle to achieving the benefits promised by a teams environment (Manz and Sims, Business 23). We suspect there are two reasons for this. First, an effective teams environment reduces the need for managers in the classic sense. (It's worth noting that the managerial ranks have already been thinned steadily as a result of downsizing over the last 10-15 years.) Secondly, there has been too little focus on the role the manager *should* play in the new environment. The tendency to resist change coupled with the failure

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[1] The Deming Library. Videotape. Prod. and dir. Claire Crawford-Mason, nar. Lloyd Dobyns. Films Incorporated, 1992. 21 videotapes.

to articulate effectively the new managerial role makes it understandable that managers might resist the teams movement.

The typical description of a teams environment is one in which the manager stops making decisions, stops giving orders, and becomes more of a coach. Unfortunately, this coaching concept may not be very well defined in any specific way. In addition, there is no clear reason given for why a manager might see this change as beneficial to his/her career. This article will explore the new developing role for managers in sufficient detail to give a manager facing deployment of teams some sense of what she/he may actually be *doing* in the new environment and how that job can prove to be a desirable, enriching experience.

Teams Environment

There are three kinds of teams typically discussed:

- *quality circles*--groups of employees focus specifically on quality problems in delivery of the products or services the organization produces;
- *Total Quality Service (TQS) teams*--groups of employees focus on business activities as a set of processes that can be incrementally improved; and
- *self-directed/self-managed teams*--groups of employees manage themselves collectively and assume responsibility for many of the traditional managerial functions, such as, performance appraisals, disciplinary actions, and budgets.

The three types of teams share common conceptual underpinnings and build upon one another. Quality circles were the first to gain popularity in the early 80's, but are more or less considered passé today. Manz and Sims consider the latter two (TQS and self-directed teams) a particularly powerful combination (Business 207). Quality circles recognize that it's the people who do the work who best know how to fix problems. TQS teams build on and extend the quality circle concept to recognize that a problem may be the result of more systemic issues, requiring a look at the entire business process to address the fundamental problem. Self-directed teams go one step further to recognize that the processes themselves are affected by the organizational structures we build and the mindsets of the people within them.

Each type of team involves some degree of change in the traditional perception of the manager as the person having the most expertise and who rightfully should make all the decisions. In quality circles and TQS

teams, the existing organizational structure is usually retained, thus leaving the existing power structure in place. Thus these two team types are fundamentally *evolutionary* in nature. However, self-directed teams challenge the basic power structure: the right of the manager to make decisions and to be in control. This makes them fundamentally *revolutionary* in nature (Manz and Sims, Business 211). We will focus on the new role of the manager within a self-directed teams environment as we believe that is where the teams movement is going.

High School Management Model

Traditional management is based upon what we call the "high-school management model." We contend most organizations have been managed like high schools. They have traditionally been run by a professional staff of hierarchical authority figures (teachers/managers) who ensure that everything runs smoothly, that everyone is where they are supposed to be at the appropriate time (time clocks/bells), that no one is goofing off, and that property is not stolen or damaged. These authority figures tell everyone what to do and how to do it, and are responsible for creating and enforcing "the rules." The students/workers compete with one another and cannot be trusted to work on their own or to make their own decisions. They receive grades (performance reviews) and are punished if they make a mistake or violate the rules.

Unfortunately, the above describes too many of our organizations. Is it any wonder we have seen so much childish behavior in the work place? A first job experience at a large insurance company located in the midwest illustrates this point. This company rang bells to signal the start and end of the work day and start and end of the lunch period--reminiscent of school class periods. Employees were not allowed to leave their desks early. Grown men in three-piece suits cleared their desks five minutes before quitting time and waited for the bell with their hands folded on their desks. Once the bell rang, they literally *sprinted* to the parking lot to get ahead of traffic! You can believe that this company got *zero* additional time or effort from these individuals as they were simply not engaged in what the business was all about. This experience taught a valuable lesson: if we *treat* people like children, they will *behave* like children.

Teams Management Model

The teams approach is about treating people like adults; recognizing that work is a voluntary activity and that everyone wants to enjoy and take pride in her/his work. Dr. Deming makes this point a hallmark of his

philosophy[2]: that there is intrinsic value to work and people want to do a good job. We need to ensure organizational processes support workers' ability to do a good job and ensure employees' ability to affect the outcomes of their efforts. If the processes do not allow workers to do a good job or if workers are unable to affect the outcomes, they become disillusioned and disengaged...they become like high school students again.

In treating people like adults, the teams approach recognizes that each person has a critical role to play in the delivery of the organization's products and services. It also recognizes that each person--once he/she is trained--is in the best position to understand the details of any process and serves as the best source for identifying ways to improve each process. The teams approach recognizes that a synergy occurs when everyone is working together towards a shared goal and everyone understands the issues and challenges involved in meeting that goal.

The Manager Psyche

We managers have a vested interest in maintaining the status quo. We have all grown up in the traditional hierarchical system and, indeed, have prospered by it. The unpleasant truth is that we tend to like to control others, like the notoriety of being the decision-maker, and enjoy the special status being a manager provides. Thus managers are often *not* thrilled at the prospect of giving up control and sharing decision-making and the limelight with others (Manz and Sims, Business 202). It challenges our view of ourselves as important and necessary to the organization. It can be a serious blow to our egos to recognize teams can do the job--and usually do it better--than we can. These provide some powerful reasons why managers might resist the implementation of teams.

An early formal teams training experience--where a new team was being introduced to a pair of tools, brainstorming and multi-voting--provided a object lesson on the power and value of teams. One of the participants was knowledgeable about the topic being discussed and contributed a number of ideas in the round-robin technique being used. There were many other contributions, however, and when it came time to vote for the best alternatives, he did not vote for a single one of his own ideas! He was forced to admit his ideas had simply not been as good as those generated by the rest of the team.

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[2]The Deming Library. Volume 15.

The Manager's New Role

Is there anything positive the teams environment has to offer managers from the old hierarchical structure? We believe the answer is yes, however, the role and environment is significantly different from the one they have been used to (Manz and Sims, Super 206). A good way to underscore this is to abandon the title of "manager" and adopt something different such as "team advisor" as suggested by Manz and Sims or perhaps "case manager" as suggested by Hammer and Champy. "Advocate" is another possibility.

The traditional managerial roles are simply not needed in the new teams environment. Those managers who define their role in the organization simply on the basis of control may not make the transition to the new order. However, managers who define themselves on the basis of leadership, advocacy, the removal of barriers, facilitation, coordination, and the development of staff should make the transition to teams smoothly since they already possess the appropriate mindset for a teams environment. In the following paragraphs, each of these elements will be described.

Leadership--providing direction for the organization; establishing a vision. People don't want to be managed, they want to be led(Manz and Sims, Super 99). We assert this has always been the most important role of management. Teams have shown that they can manage themselves on a day-to-day basis thus freeing management's time to concentrate on moving the organization to where it needs to go. Whether we like it or not, change is the one given in today's organizations. Nothing will kill an enterprise faster than stagnation. The following metaphor evokes how many of us feel today: life in the 90's is "permanent white water[3]." Forget the idea of shooting the rapids and coming to a area of calm where we can collect our senses before hitting the next stretch of rough water; we're in an environment of constant change: permanent white water. Leadership has never been more important than it is today and teams can release managers from the imperatives of daily crises to focus on determining where the winds of change will take the organization and how it can profit from those changes.

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[3]Taking Charge of Change. Videotape. Prod. Kirby Timmons and Melanie Mihal. Dir. Jeff Brady. CRM Films, 1992. 20 min.

Advocacy and Removal of barriers--battling the bureaucracy, forming partnerships, and overcoming negativism to advance team goals. A leader in an organization needs to "clear the way" for progressive ideas to be implemented. As Hammer and Champy point out, many barriers are erected against new ideas in any organization (28). A worker comes up with a new idea that he feels has merit and takes it to his boss. If she likes it, she takes it to her boss, and so on. Anyone along the chain of command has veto power; any single "no" can kill it. Conversely, look at all the "yeses" that must be garnered in order for the idea to go forward. Is it any wonder our organizations stifle creativity? There is a role for advocacy and removal of barriers that the team advisor can play. This role requires someone who is articulate, who is skilled in consensus-building, who can help explain and sell an idea, who can line up the necessary resources, and who can keep the idea from getting stalled in the bureaucracy.

Facilitation, coordination--help the team find solutions to problems and coordinate activities between teams. There is a role for facilitation and coordination that is crucial to the group process. The team advisor can be tapped to assist the team as they see fit. Not someone to give them the answers, but someone who can help them find the answers on their own. Additionally, coordinating activities with others in the organization to ensure a smoothly operating enterprise.

Development of staff--help staff members continue to progress in their careers. There are many developmental opportunities in the teams environment. Team members are called on to perform functions and roles they have had little or no experience with or expertise in: budgeting, conflict resolution, providing feedback, dealing with different communication styles, and differing levels of interpersonal skills. Ongoing training is needed to help develoip members of the team . They also need access to someone who can serve a mentor role and help individuals develop needed expertise. Technical skills can be provided by the team, but they will need help from outside the team to develop these additional skills.

It should be noted that the above elements for the new "team advisor" position were also key in the traditional managerial role. The difference is that, in the teams environment, it is the team's choice to involve the team advisor or not as they see fit. Or perhaps find another team advisor that better fits their needs. The hallmark here is empowerment and choice. In the new power structure, teams are in the driver's seat.

Conclusion

Managers in the old traditional hierarchical structures have nothing to fear, per se, from the introduction of teams. Change is coming to our organizations. It is being driven by the expediencies of downsized organizations and increased competition. The old hierarchical command and control organizational structures are no longer effective in today's global market and enterprises.

The work force is demanding and receiving a say in how their organizations are run. This is not altruism on the part of management, but rather a recognition there is a better way of doing business. This is truly a win-win situation as everyone comes out ahea--including the former managers, if they understand what their role can become. Those managers who are control-oriented may not survive the transition...but their days were already numbered. Teams will only hasten the process as we transform our organizations into more enlightened institutions that treat people like adults with productive and innovative contributions to make.

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Project Implementation Using a Team Approach

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Lafayette College is a small, private liberal arts college in Easton, PA. The administrative activities of the College are supported by the five member staff of Administrative Computing Services who provide software programming, analysis and training to administrative personnel. In the fall of 1993, Administrative Computing began the process of evaluating commercial software to replace the hybrid home grown/commercial software that had been in use since 1983. In February of 1994 a package was chosen and the process of converting the old system to the new was begun. The Team method of implementation was chosen for this 18-month project. What makes this implementation unusual is that this five-member team is self-directed; there is no formally appointed team leader or project manager. This presentation will serve to share our experiences to date working as a self-directed team; where we have been successful and why, as well as the problems we have encountered along the way and what we have done toward their resolution.

Introduction

Lafayette College is a small to medium size private undergraduate-only liberal arts college in Easton, Pennsylvania. The College's curriculum is distinguished by the rare combination, on an undergraduate campus, of degree programs in both the liberal arts and engineering. The full-time student enrollment is approximately 2000, with faculty and administrative staff numbering approximately 500.

In 1980, the College decided to stop using a local service bureau in favor of in-house processing using a commercial, college-oriented software package. This software has been extensively modified over the past thirteen years with additional modules developed in-house using the development tools present within the package.

In the Fall of 1993, the College decided to evaluate other commercial software packages in order to take advantage of current and future technologies to better support the activities of the College. In February 1994, after extensive evaluation of the available software packages that would run on DEC equipment, a decision was reached and the software was purchased.

The primary objectives of this acquisition were to improve student services through integrated administrative systems, provide consistent information throughout the campus community and to assist the user base in receiving timely information to support their decision-making capacity. This project was started in March of 1994 and encompasses the following: the installation of new hardware and software, training (both technical and user), conversion of existing data, evaluation of work flows in each functional office with an eye toward maximizing efficiency, system and parallel testing and cutover to the new software.

This project will initially affect every administrative area of the College. The systems to be implemented include Student (Admissions, Registration and Student Billing), Alumni, Financial Aid, Human Resources and Finance. The estimated length of time to complete this project is 24 months with the implementation schedule calling for the final module to be implemented by July of 1996.

The Administrative Computing staff is composed of five programmer/analysts who have been with the College five to ten years. Prior to the start of the current project each staff member was assigned to one or many functional administrative areas with very little overlap. For example, one person was assigned to support the Alumni and Development offices as well as the Registration area, another the Human Resources, Admissions and Recruiting offices, a third the Student Billing, Payroll and Financial Aid offices as well as some system management tasks, the fourth person handled Business Office requests (Accounts Receivable, Endowment, and other financially-oriented areas). The fifth person was responsible for developing and maintaining projects that distributed Administrative information (student schedules, transcripts, department budgets) on the campus-wide

information system for use by students, faculty and staff. Requests for software modifications, enhancements or new development would be reviewed by the Director and then typically assigned to the appropriate staff member to complete. There was very little collaboration between staff members on projects since a typical request wouldn't involve more than one functional area. Each person was responsible only for their own work and usually didn't need to rely on anyone else for assistance.

Typical Project Management Scenarios

In most projects of a medium to large scope there are defined leadership roles. Some of these roles have been called project leader, project manager, team leader, and systems analyst., among others. As some of these titles suggest, there are leadership activities that are handled by these people in an effort to schedule resources, manage and coordinate tasks, as well as just plain keeping the project running (hopefully) smoothly and on-schedule.

Responsibilities of a Supervisor

- Transmit information, knowledge, and skills, in a timely manner to project members
- Interpret and apply policies and work specifications for the project members
- Teach project members how to manage work processes effectively and evaluate results
- Establish communication channels between departments and project members in order to eliminate duplication of effort
- Support goals of the project to internal and external customers
- Troubleshoot for project members in areas of expertise
- Track and communicates progress to management
- Serve as a mediator in conflicts
- Schedule resources in the most efficient manner

(Harrington-Mackin, 1994). While this list is by no means exhaustive, it does give a glimpse

into what the skills are that need to be present in order to manage a project effectively.

Lafayette College's Team Approach to Project Management

While the use of teams to accomplish tasks is by no means a new concept, the manner in which we have decided to use this model is somewhat unusual; we have no permanently assigned team leader. We are what is called a "self-directed work team". What makes this interesting is that we didn't start out to be self-directed work team - it just evolved from the existing staffing structure.

In an effort to understand where we were heading, some research turned up the following:

Self-Directed Work Teams Description

- Comprise an intact team of employees who work together on an ongoing, day-to-day basis and who are responsible for a "whole" work process or segment
- Assume "ownership" of product or services and are empowered to share various management and leadership functions
- Are limited to a particular work unit
- Function semi-autonomously; are responsible for controlling the physical and functional boundaries of their work and for delivering a specified quantity and quality of a product or service within a specified time and at a defined cost.
- Are all cross-trained in a variety of work skills
- Share and rotate leadership responsibilities; team members have equal input in decisions
- Accept the concept of multiskills and job rotation (except for jobs requiring years of training and technical expertise)
- Work together to improve operations, handle day-to-day problems, and plan and control work
- Set own goals and inspect own work; often create own work and vacation

schedules and review performance as a team

- May prepare own budgets and coordinate work with other departments
- Usually order materials, keep inventories, and deal with suppliers
- Are frequently responsible for acquiring new training and maintaining on-the-job training
- May hire own replacements and assume responsibility for disciplining own members
- Monitor and review overall process performance

Most self-directed work teams gradually take on responsibility for these tasks as they gain confidence in their own skills and are able to redefine the role of the supervisor. The shift to self-direction represents change, and with change comes resistance. (Harrington-Mackin, 1994)

An excellent point made by Harrington-Mackin is that this shift in direction is change and that change is always accompanied by resistance. Even though we were all enthusiastic about the new project, resistance managed to rear its ugly head more than once.

When the project began it became obvious that there would be new technical areas of interest. In an effort to maximize our effectiveness, the Director of the department surveyed the staff to find out what areas interested each person with the end objective to be the assignment of an area or areas to each individual. This individual would then become the "specialist" for that area and receive more advanced training than the others in order to become the expert in that area. While this was a great idea in theory, we all soon found out that not everyone could have the area they wanted and this contributed to some tension for a short time. Initially there were some "turf" struggles - especially in those areas that overlapped. Both ends of the spectrum emerged - some people wanted to do their "own thing" and protected their knowledge zealously, others felt some task or the other really belonged to the other person and couldn't understand why the other person didn't see it that way. A big factor in these turf wars seemed to be personalities and egos. Suddenly we were all equals in our technical knowledge. Seniority didn't guarantee "expert' status anymore and while this was refreshing it was also nerve-wracking at times.

Eventually these problems dissipated as everyone settled into their new role; we all soon found out that there was more than enough work to be done by all and that there was no chance that anyone was going to be left behind in their technical knowledge. It also became clear whose strengths could be used positively for the team and what weaknesses had to be worked on. While this change was positive in some respects, it also had a negative side.

Since the implementation schedule was based on the processing requirements of the school year, we had to adhere to the timeline pretty strictly. Everyone was so busy keeping up with the aggressive schedule that there were times when people who needed help with something were told by others that they didn't have time to help. Tempers flared when people believed that the other team members had no appreciation of the pressure that was on them to complete a task for a deadline. It became evident that these situations were due, in large part, to miscommunication between team members.

Prior to this project we had held weekly staff meetings that allowed each person to give a brief review of the projects they were working on and share any new things they had learned that might help someone else. Since we were so busy trying to keep up with our tasks these meetings fell by the wayside which resulted in additional "people" problems. This lack of communication resulted in many misunderstandings between people about their responsibilities. In order to alleviate this problem we re-instituted the weekly meeting with a formal agenda published in advance with input from all the team members on the topics to be covered.

Vendor communication was also an issue that we had to resolve. Initially there was one person designated as the vendor contact on training issues. As the project progressed there became more vendor issues that had to be resolved and no one was sure who was handling what. In this situation, as in so many others, it became clear whose personal strengths best suited the task and this person became the vendor contact on non-training issues.

The turning point for the team actually came six months into the project. During a team meeting a member brought up an excellent point about our method of operation; it needed a mind-shift. We were trying to operate as a team in the same manner we had worked on individual projects. Prior to this project we never had to rely on each other or wait for someone to accomplish something in order for someone else to move on. Although it was something we knew at a logical level, we finally realized that other people depended on us - and that dependency brought added responsibility to the other team members. A breakthrough! We were actually starting to think AND work as a true team - not just a bunch of individuals.

A final difficulty that we needed to resolve was keeping the "big picture" in mind while tracking the progress of the project. We finally had to admit that since we were so busy at the detail level of administering this project we needed someone else to keep track

at the macro level. We brought this up to the Director and he agreed that we needed additional support in this area. In order to improve this area he agreed to have bi-weekly individual status meetings with each team member to discuss their current goals and the progress made toward meeting these goals/deadlines. This has helped keep him in touch with where we are as a team as well as head off any potential conflicts before they escalate.

If We Had To Do It All Again

This project is still underway; we have another 18 months until the last module is installed. We have come a long way in the past six months and I'd like to believe that the worst is behind us. However, being a few months older and feeling years wiser, the following recommendations may help other institutions considering using a team approach to project implementation.

- Understand what you are getting into BEFORE you begin. Read some books on team building, attend some seminars, talk to other people using teams.

- Realize that some personality types are not well suited to team work - consider the people you intend to have on the team carefully

- Management must support the team openly and without reservation, including empowering the team with the authority it needs to accomplish the designated tasks

- Identify the roles needed by the team and allow each member to be flexible in these roles. Example roles include facilitator, scribe, timekeeper, single point of contact (SPOC), etc. Participative leadership is a requirement of an effective team. All team members must develop team leadership skills. The facilitator must neither dominate the team nor decide team rules alone (Harrington-Mackin, 1994).

- Team work is risky business - understand that it will take longer than you think for the team to be an effective working unit

- Communicate, communicate, communicate. Meetings are necessary - not time wasters.

- Set clear agendas for your meetings and stick to them. Distribute agendas in advance. Make it clear that all are expected to participate - the facilitator of the meeting must make sure that no one dominates the meeting.

- Realize that conflict will happen - anticipate what methods will need to be used to

resolve conflict

- When identifying tasks to be done make it clear whose responsibility it is to complete the task, when it has to be completed and who is dependent upon that task being completed. We found that posting these tasks in a prominent area helped remind people of their outstanding tasks.

Conclusion

The experiences we have had working as a self-directed team have been enlightening to all of us. While Lafayette still has a long way to travel before this project is complete I believe that the lessons we have learned in the past six months have made us more valuable - to each other and to the College whose activities we support. Team work has been frustrating, maddening and crazy but it has also been very rewarding and mind expanding.

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Restructuring a Large IT Organization: Theory, Model, Process and Initial Results

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Abstract

The Division of Information Technology at UW-Madison (a recent merger of academic computing, administrative computing, and telecommunications) has completed a thoroughgoing reorganization following the structural model and participative design process of consultant N. Dean Meyer. This represents the first application of this approach in education, encompassing a staff of over 600 people.

The model defines four basic types of activities in an IT organization. It separates these activities into distinct units to avoid common problems, such as conflicting demands and technological bias, that beset most organizations. This approach creates greater specialization and expertise, but at the requirement of better communications--most work is done in teams of complementary specialists. One key to success is to provide clear horizontal communications between units. Another is to use "contracting" to define clear roles and responsibilities. Equally important, however, is a change in organizational culture to emphasize entrepreneurship and quality service.

Based on the model, DoIT's design is a flat organization that bears little resemblance to the original. There is now exactly one locus for each activity and a clear picture of where new activities should be implemented. The structure can support frequent changes in both technology and customer needs without structural dislocations.

Restructuring a Large IT Organization: Theory, Model, Process and Initial Results

Background

A committee of UW-Madison faculty and staff was formed in 1988 to study information technology directions for the campus. Among the committee's recommendations was the creation of a Division of Information Technology (DoIT), comprising the existing Administrative Data Processing (ADP), Madison Academic Computing Center (MACC), and Telecommunications departments. The merger was expected to

- Provide campus-wide information technology planning.
- Improve instructional technology.
- Expand student access to information technology.
- Increase computing support for research.
- Provide better access to institutional data.
- Merge services to avoid unnecessary duplication.

The committee further recommended the appointment of a Chief Information Officer (CIO) to lead this new organization. The new DoIT includes about 400 permanent staff and 200 student and limited-term employees. The new CIO, Mark Luker, was hired in July, 1992.

Goals

One expectation for the CIO was to transform DoIT into a cohesive unit. This began with the preparation of a DoIT Strategic Plan, based on a method detailed by John M. Bryson in *Strategic Planning for Public and Nonprofit Organizations* (1988, Jossey-Bass). Top- and middle-level managers created a Strategic Plan for DoIT, published in March 1993, that identified the 10 most important issues for the division, in priority order:

- Improve information technology services to students.
- Facilitate access to data and information.
- Establish a technology architecture.
- Extend the network to the entire campus community.
- Improve customer focus.
- Develop and enhance campus partnerships.
- Enhance the campus backbone network.
- Develop an enterprise information architecture.
- Improve the timeliness of applications.
- Improve the campus Email system.

Making rapid progress on many of these issues required reorganization, such as improving information technology services to students. (The existing three organizations each provided some IT services to students, but there was some overlap and little coordination.) The need for reorganization and integration of network services was specifically recognized in the plan. (Both the academic and administrative computing units, for example, provided LAN services.)

DoIT decided to restructure in order to

- Meet the increasing information technology needs of UW-Madison (for example, expanding services to students in the areas of computer access and instructional technology).
- Sharpen the organization's focus on customer service and quality.
- Unify the organization with one mission and one culture.
- Create a high performance organization, strategically aligned to meet the information technology needs of the future.
- Reduce confusion among users, who were faced with several DoIT units offering similar and sometimes competing services.

As strategic planning neared completion, DoIT also began to implement Total Quality Management. This served as a starting point for merging the cultures of ADP, MACC, and Telecommunications. The first improvement teams were specifically designed to be cross-functional and include staff from the three organizations.

In the spring of 1993, DoIT adopted a theory, model and process for designing information technology (IT) organizations described by N. Dean Meyer in his manual, *Structural Cybernetics*. DoIT was pleased and surprised to find that Meyer's methodology was well suited to a university environment (and specifically to UW-Madison) and needed little adaptation. DoIT hired Meyer as a consultant to assist with several steps in the process. His experience with reorganizing other IT departments was invaluable and saved much time.

Theory

Meyer's philosophy for transforming an organization involves more than just moving to a new structure on the organization chart. It includes five dimensions.

1. Organizational structure--no redundancy or gaps in services and clear boundaries for each unit.
2. Internal economy--the systems of budgeting, priority setting, charges, and tracking, which determine what products are produced for whom and when.
3. Culture and values--organizational culture to include customer focus, entrepreneurship, and teamwork.

4. Feedback loops--rewards to encourage behavior that is in the organization's best interest.
5. Methods and procedures--standard processes used throughout the organization for conducting its business.

We saw the need to address all of these dimensions and followed the consultant's recommendation to begin with organizational structure and culture and values.

The design of the restructured DoIT is based on a set of organizational principles that are detailed in *Structural Cybernetics*, some of the most important of which are the following:

Each individual has a single functional responsibility. This is based on the principle that one person cannot be expert in more than one thing at a time. A person is more effective being an expert in one technology, for example, than being mediocre in a number of technologies.

Multiple units would not offer the same products or services; that is, no internal competition for services. For example, not having several groups provide LAN design.

Business specialists/technology generalists would be separate from technology specialists/business generalists. This would help to identify clearly the areas of excellence for each person/group.

Those responsible for daily operations would be clearly separate from those working with new technologies. Introducing innovation and maintaining reliable operations should be in different units.

Model

The new DoIT organizational groups are of four major types, based on the Structural Cybernetics theory:

Technologists These groups build inventive, state-of-the-art technologies and write articles on leading-edge software or systems design. There are two types of technologists: application technologists are responsible for data-specific systems, and base technologists are specialists in component technologies and off-the-shelf tools.

Service Bureaus These groups are dedicated to providing reliable and efficient operational services. There two types of service bureaus: machine-based service bureaus own and operate shared-use systems and sell services that are primarily produced by machines, and people-based service bureaus provide

services produced by people rather than machines, such as help desk support and training.

Architect The Architect is responsible for assembling key decision makers on campus and defining an information architecture for the campus. This person will build a campus consensus for standards, guidelines, and statements of direction that constrain the design of systems for the purpose of eventual integration.

Consultants The consultants are responsible for understanding the client's business and applying methods of business analysis. There are strategic consultants, who serve key opinion-leaders on campus, and retail consultants, who are available to anyone on campus.

Organizational units that provide more than one of the above functions are called "rainbows." An example is a unit responsible for design, installation, and day-to-day administration of a LAN. This creates a conflict between innovation and ongoing operation. "Rainbows" should be limited to the highest level of the organization; individual units should be only one of the above types.

Process

The reorganization began in earnest in the summer of 1993. Some "ground rules" were established to encourage a healthy transformation:

- No reduction in staff would result from the restructuring.
- Salary reductions would be avoided whenever possible.
- The resulting organization would be "flatter" than the current structure.
- The organization would be designed with active participation of existing staff.
- The "Good Citizen" rule, which states that those leading the design of the new organization work for the best structure without regard to how it affects them personally.

The new DoIT was designed from the top down, with the CIO and the directors and assistant/ associate directors from the original three organizations designing the first level ("Tier 1"). Tier 2 was roughed out by the Tier 1 leaders chosen by the CIO, and reactions were requested from a larger group of supervisors and high-level technical staff.

Each design step was preceded by a training session with the consultant, with those trained at each step participating in the training of the next.

While the leaders of the new organization were spending many hours behind closed doors designing the new organization, there was regular communication with DoIT staff. In May, 1993, the CIO presented to staff an overview of the organizational design principles and the design process. Frequent updates were distributed by email in the summer and fall of 1993 and the winter of 1994. DoIT leaders continued to inform staff about the design and the schedule of events through a series of videos and structured management presentations. Staff were encouraged to submit questions directly to DoIT leaders and the DoIT Personnel Office or anonymously via an electronic mail address which disguised the sender. Answers to these questions were made available to staff on the division's internal gopher-based information server.

On February 28, 1994, DoIT was ready to announce its new organization to all its staff. This was done in an all-day event that served as training for "Tier 3", since the new organization has only two levels of management below the CIO office. Presentations were made by the Chancellor, the CIO, the consultant, and many of the new Tier 1 and Tier 2 managers.

Following announcement day, there was still much to do....

- Consultants spent a month or so getting out to all strategic clients to explain the new organization in person
- Two problems in rostering staff to the new units had to be considered
- Staff spent five half-days in more detailed training sessions in their new units
- Staff documented all existing work as formal contracts
- Minor changes were made in staff assignments to balance workloads better between groups

The New Organization

Tier 1 for the new organization contains the following units. Structural Cybernetics names are given first, with the names selected by DoIT units in parentheses.

Applications Technology

Applications Technology acquires, develops, and maintains data-specific application systems. This entails analyzing, designing, and building inventive, state-of-the-art systems; tracking emerging technologies; researching the abilities and uses of new products; writing articles on leading-edge products or systems design; and planning for future systems.

Architect (Architecture)

The Architect works with the University community to build a consensus on campus standards and guidelines for the design of hardware and software systems. Such systems will then (at least eventually) be

able to inter-operate effectively, and the University can share training and experience. Agreed-upon standards and guidelines are documented, publicized, and periodically reviewed.

Base Technology--Platforms (Systems Engineering)

The Base Technology - Platforms unit acquires, develops, and maintains systems in the platforms, operating systems, data base management systems, and networks areas. This entails analyzing, designing, and building inventive, state-of-the-art technologies/systems; tracking emerging technologies; researching the abilities and uses of new products; writing articles on leading-edge products or systems design; and planning for future systems.

Base Technology--Tools and Disciplines (Tools and Methods)

The Base Technology - Tools and Disciplines unit acquires, develops, and maintains systems in the end-user computing, instructional technology, software engineering, and discipline areas. This entails analyzing, designing, and building inventive, state-of-the-art technologies/systems; tracking emerging technologies; researching the abilities and uses of new products; writing articles on leading-edge products or systems design; and planning for future systems.

Deputy CIO/Outreach

The Deputy CIO/Outreach shares the duties of the CIO by representing him outside the division. This includes providing campus leadership in information technology and working with state and national groups.

Deputy CIO/DoIT Operations

The Deputy CIO/DoIT Operations represents the CIO in the his role as provider of IT products and services. For example, the Deputy CIO/Internal brokers CIO decisions, including allocation of resources (e.g., budgets, FTEs, and profit/loss targets).

Machine-Based Service Bureau (Production Services)

The Machine-Based Service Bureau owns and operates shared-use systems and provides a stable and secure environment to meet the needs of the customer. Shared-use systems include the computer operations center, telecommunications network operations, applications processing, printing, and computer labs. This unit also provides facilities management for customers who own their equipment.

People-Based Service Bureau--Administration (Administration)

Administration provides administrative, billing, financial, human resources, and purchasing services for DoIT units in support of their missions. DoIT units are businesses within a business and are entrepre-

neurial in spirit. Administration provides the means for the individual units to have integrated business processes while functioning within State and University rules, regulations, and guidelines.

People-Based Service Bureau--Quality and Effectiveness (Organizational Effectiveness)

This unit helps DoIT staff improve customer satisfaction and provide effective management of projects and daily operations. It helps promote staff awareness of organizational culture, structure, values, and work methods.

People-Based Service Bureau--Services (Support Services)

Support Services provides cost-effective support for installation and operation of information technology products and systems. It also helps clients and customers to use, develop, and deliver information technology products and systems. Examples include help desk operations, telephone operator services and voice mail, delivery services, installation and repair services, training, technical writing, and graphic arts.

Retail Consultancy (Sales Consulting)

The Retail Consultancy provides:

- on-demand needs assessments for most clients
- a showroom for DoIT products and solutions
- a sales facility where customers can purchase DoIT products
- a newsletter and product information for customers
- market research
- promotion services.

Strategic Consultancy (Strategic Consulting)

Strategic consultants maintain close ties with campus opinion leaders. They help clients identify strategic IT solutions and act as a brokers between the client and other parts of DoIT. Consultants are knowledgeable about DoIT products and services and the client's business, and they alert clients to emerging IT solutions.

A new culture for the organization

An important aspect of the new organization is its culture, which is based on a formal set of principles described in a six-page document. The new culture is unlike any of the cultures of the three predecessor organizations and is based on customer focus, entrepreneurial spirit, and teamwork. The "Cultural Principles" fall into several categories:

customer focus
quality

entrepreneurship
empowerment of staff
contracts with customers
risk-taking
collaboration
incentives
decentralization
human resource policies
meeting management
organizational structural principles

Examples of specific cultural principles are

1. The purpose of DoIT is to serve its customers, not control them.

2. Everyone is responsible for his or her own quality. There are no inspectors and no other group to make up for one's lack of quality.

3. DoIT is a "business within a business." Similarly, each department and group within DoIT is its own "business within a business," and each manager is evaluated as an independent business person. This spirit of entrepreneurship will carry through as many levels of the organization as possible.

4. Decision-making authority will be granted to match responsibilities.

5. We form clear contracts with our customers and suppliers. Contracts are not long or legalistic and, for simple projects, they may be verbal. They are, however, clear agreements between customers and suppliers.

6. Customers decide on the degree of "technological and business" risk they wish to take in their projects.

7. Whenever possible, we will buy services from others within DoIT rather than from outside the division. Through this mechanism of subcontracting, teams are formed dynamically in response to project requirements.

8. Performance will be measured against clearly stated, agreed-upon objectives. Recognition will be based on performance. This includes teamwork as well as individual performance.

9. When clients choose to do work themselves, DoIT will support and mentor them whenever possible.

10. DoIT will value staff for a variety of contributions -- such as customer focus, teamwork, knowledge, experience, financial management, strategic im-

pact, external relationships, and supervisory responsibilities -- but not for increasing staff.

11. Meetings will be well managed and will start on time.

12. Jobs will be "whole"; that is, people's responsibilities will be defined in terms of products, not tasks. Each group should be completely responsible for all aspects of producing one or more products (although each group is empowered to use subcontractors), including research, planning, product development, and product maintenance and support. This leads to two corollaries:

a. The structure will not separate learning (research) from doing.
b. The group that builds a system maintains that system.

Internal Economy

In the new organization, each group is empowered to run a business within our business, which includes maintaining profit and loss statements and billing each other for subcontracted work. Clients who received free development services are being converted from a budget that was 'awarded' by a University priority-setting process to labor shadow budgets: they each have a budget of DoIT labor that they can spend for any of their projects. Strategic consultants work with them to help set priorities, and the normal University budget process mediates their competing needs.

Some Lessons Learned

Transforming an organization, and doing it well, is a lengthy process. It is more than merely changing the organization chart. To be effective, the reorganization must define the roles of each group and how these groups interrelate. It is also important to change the existing organizational culture to correspond to the new organizational structure. We expect this change process to continue for some time in our organization.

Using an organizational structure model proved to be very worthwhile. The theory and the model gave designers common goals and terminology. It provided a focus and allowed the designers to look beyond personal interest and view the organization as a whole. Hiring a knowledgeable consultant who specialized in information technology organization was also very helpful.

During organizational design, all Tier 1 and Tier 2 staff were trained in Structural Cybernetics and the redesign process. Although achieving a good understanding of the model took much time, it was worth the trouble to carefully describe the domain for each group. Change education and stress management classes were also offered to staff.

Reorganization is very stressful. DoIT leaders were very aware of this and frequently communicated progress to staff. Nonetheless, staff continued to request information, often when it did not exist. More and better communication would have been helpful.

Rostering the large majority of DoIT staff into the new organization was relatively easy. These staff were already focused on a single major function and could be readily placed with that function in the new organization. A number of staff, however, were very "rainbowed" and were more difficult to place.

Supporting tools such as a contract database, billing system and a help desk problem tracking system are required for the new organization, especially when several old organizations using different tools are merged. Our lack of such tools is hindering us in completing the reorganization.

Designers of the new organization needed a complete understanding of the model and regular reinforcement of the concepts. We often questioned whether placement of a function in the new organization fit the model. As new staff join the organization and DoIT adds new products and services, this reinforcement will continue to be critical.

As we got beyond our announcement day and began detailed discussions with staff members about their new roles, we have had misunderstandings about the new processes, like contracting, designed into the new organization. More and better planning of these processes, supported by appropriate tools, would have made the later phases of reorganization much smoother for staff.

Changing the structure of our organization and also its internal economy at the same time have created perhaps too much change at the same time. In retrospect, we probably should have started earlier in the process with the internal economy but made that change considerably more gradual.

Acknowledgments

This paper is heavily based on one prepared for CUMREC 94 by Judy Caruso and Jack Duwe, and relies on the work of the entire DoIT design team and, of course, on our consultant N. Dean Meyer.

Table 1: The New DoIT Structure

Chief Information Officer
Deputy CIO-Outreach
Deputy CIO-DoIT Operations

Administration
- Accounting
- Administrative Support
- Billing
- Human Resources
- Purchasing
- Financial Technologist
- Human Resources Technologist

Architecture
- Associate Architect

Organizational Effectiveness
- Project Management
- Quality Development

Production Services
- Applications Processing
- End User Computing
- Enterprise Data Storage
- Printing and Copying
- System Operations
- Publishing

Applications Technology
- Academic Support Applications
- Business Finance Applications
- Business Operation Applications
- Human Resource Applications
- Library & Information Retrieval
- Student Academic Applications
- Student Finance Applications

Tools and Methods
- Instructional Technology
- Media Technology
- Office Information Technology
- Personal Communication Technology
- Software Development Technology

Sales Consulting
- Marketing Communications
- Product Sales
- Showroom & Solutions

Strategic Consulting
- Academic Support
- Enterprise Support
- Institutional Support

Support Services
- Directory Assistance and Messaging
- Distribution
- Help Desk
- Installation and Repair
- Professional & Technical Education
- Publishing

Systems Engineering
- Data Resource Management Technology
- Network Engineering Technology
- Network Systems Technology
- Platform & Operating Systems Technology
- Systems Management Technology

SPREADING TECHNOLOGY AROUND: AN INVESTMENT IN TOMORROW

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SACRED HEART UNIVERSITY
FAIRFIELD, CT

Sacred Heart University, a private, liberal arts university in southwestern Connecticut has, over the past fourteen years through the Faculty of Science, Mathematics, and Computer Science established partnerships with various educational institutions and school systems for both teacher and student enhancement in the science and technology areas. Those who have benefited include teachers grades K-12, senior citizens, corporate and municipal employees in the community, and students in inner city, private, and suburban settings in grades 212.

The programs established for this purpose include the following:

(1) SMARTNET 2000 and **SMART Center** for teacher enhancement in the areas of science and mathematics education and the use of technology;

(2) **Project 2000 and Saturday Hispanic Academy** for students;

(3) **The Institute of Computer Technology,** a series of workshop offerings in state-of-the-art software for the corporate and municipal employee;

(4) **Volunteer** programs on computer literacy for inner city and suburban students as well as for retired senior citizens.

All programs were established with the goal of preparing teachers, students, and future leaders with the science and technology of today in order to face tomorrow's challenges. Without partnerships, this would not have been possible.

SPREADING TECHNOLOGY AROUND: AN INVESTMENT IN TOMORROW

As we approach the twenty-first century it is an understatement to say that technology surrounds us everywhere. Multimedia, electronic highway, virtual reality, the internet, world wide web, hypertext, and cyberspace are just a few of the terms and phrases that we encounter daily in the media, in our readings, and increasingly in our institutions of learning. As this revolution engulfs the world in which we live, who has the responsibility to link people and their needs? In whose hands lie the tasks of creating a society which can not only comprehend but also utilize and gain maximum benefit from the technological boom?

Sacred Heart University, a private, liberal arts university located in southwestern Connecticut has, in the past fourteen years, established partnerships with area school systems, corporations, municipalities, social organizations, and funding foundations in order to provide a science and technology education to the community in preparation for the next century. This paper addresses the various programs which, through partnership, have as their goal preparing teachers, students, and the community with the technology of today in order to face tomorrow's challenges.

The origin of these partnerships dates back to April, 1980 when the High School Institute for Chemistry Teachers was established at Sacred Heart by Dr. Babu George, Professor of Chemistry. The institutes were conducted in afternoons of normal teaching days and the participants were admitted free of charge on a first come first served basis. It is noteworthy that one of the earliest workshops was entitled "Computer-Aided Chemistry" where the lecturers aroused interest in the use of Apple II computers for chemistry applications. All donations were initially through Sacred Heart including the lecturers, who volunteered their services. After several successful workshops outside contributions began to filter through and the program grew tremendously. Eventually, Eisenhower Title II funding came through in the amount of $30,000 and now total funding from all sources for these programs has surpassed $1,000,000.00. The success of this Institute lead directly into **Project SMARTNET and SMARTNET 2000.**

SMARTNET 2000

SMARTNET 2000 is a staff development program for teacher enhancement in precollege science and mathematics education. and the use of technology. The program is a collaborative effort between Sacred Heart University, area school districts and community resources and is co-directed by Dr. Babu George and Dr. Bette DelGiorno. The partnerships formed extend a successful staff development model from southwestern Connecticut throughout the state and impact on approximately 5,000 K-12 teachers of science, mathematics, and technology and their supervisors in 67 towns, of which five have large minority populations.

The mission of **SMARTNET 2000** is to:

1. improve science and mathematics education and the use of technology;

2. revitalize maturing teachers and administrators;

3. integrate new teachers into a systematic professional growth process;

4. provide opportunities for professionals from urban and suburban districts to interact and learn together.

SMARTNET 2000 has evolved from **Project SMARTNET,** a collaborative partnership between a public school district(Fairfield Public Schools) and a private university (Sacred Heart University) that served as a regional model of cooperation.

SMARTNET 2000 is funded in large part by the National Science Foundation for a three-year period to: assist in institutionalizing SMARTNET 2000 as a regional cooperative model for staff development; to support a systematic, ongoing K-12 staff development program that offers many strands so that teachers and administrators can select programs that apply to them to improve their content knowledge and skills; and, to provide a cadre of science, mathematics, and technology leaders to follow-up on workshops and to assist teachers in the classroom and conduct workshops in their schools and districts. All workshops are offered free of charge to teachers.

Technology workshops in **Project SMARTNET and SMARTNET 2000** have varied from programming languages like Quick Basic and Turbo Pascal to software applications such as WordPerfect for DOS, WordPerfect for Windows, Microsoft Excel, Microsoft Word, Lotus 1-2-3, Microsoft Access, Foxpro, and Internet training on the World Wide Web and Mosaic. The participants are primarily math and science teachers grades K-12 who have a varying degree of computer literacy. The goal of all workshops is not only to bring a standard of computer literacy to all teachers in the program, but moreover to encourage the teachers to incorporate the technology in their curriculum as much as possible in order to effectively bring technology skills to their students. Most workshops have been developed by Domenick Pinto, Associate Professor of Computer Science. The workshops are usually held for several hours late Friday afternoon and continued all day Saturday in order to allow the twenty participants the opportunity to gain as much knowledge as possible about the current topic. In summer there is usually one full week of computer workshops where the participants can really delve into a topic and concentrate on a five day programming exploration or software expedition. Programming applications are geared to problem-solving in the science and mathematics area (e.g. designing a program to find area and perimeter for elementary school teachers, a program to find all prime numbers less than 20000 or one to solve a system of three equations in three variables for high school teachers). The software applications cover a wide range of topics from keeping an electronic grade book in Lotus 1-2-3 or Excel to creating desktop publishing documents with graphics in Word or WordPerfect to properly recording data from a science experiment or statistical problem in a database like Access of Fox Pro. All workshops are limited to twenty teachers in order to maintain a hands-on environment with one person to a computer. It is a fact that all computer workshops have a waiting list of between 15 and 30 teachers. As of Fall, 1994 all computer workshops are held in Sacred Heart University's newly established Pentium lab. Quite a long journey from the Apple II computers of 1983!

PROJECT:2000

Another partnership which was developed by Dr. George at Sacred Heart University is **PROJECT:2000, A SUMMER INSTITUTE IN SCIENCE FOR ACADEMICALLY TALENTED YOUTH.** This program was initiated in the summer of 1989 for children grades 2-9. A two week program has been designed to provide its participants with exciting activities in areas of their own particular interest. It provides

students with the opportunity to explore areas of science and technology that they would not ordinarily be able to study in a traditional classroom. There is a very modest fee for tuition to cover the cost of instructors, assistants, and supplies. The focus of each course is on "learning by doing" in a relaxed, enjoyable, non-competitive atmosphere.

The Computer Science classes are hands-on with the morning session for grades 4-6 and the afternoon session for grades 7-9. The class size is limited to twenty and the instructor is assisted by two or three college students to provide a ratio of five or six students per teacher. All Computer Science courses in **PROJECT 2000** have been designed by Domenick Pinto.

The morning session (grades 4-6) features a week of Introduction to Microsoft Windows, where the children learn what the author calls "mouse literacy", i.e., the ability to correctly manipulate a mouse to open and close windows, switch between applications, and move around windows. In addition the students customize their desktop with color, wallpaper, and screen savers, use paintbrush, and create documents with WordPerfect for Windows and Microsoft Works. A class database is created and the children are also asked to bring in a list of their favorite sports heroes, TV favorites, movie stars, etc., in order to create their own database. The second week features an introduction to programming using Quick Basic in which the children solve simple problems using programming and then progress to doing graphics programming with various figures like lines, circles, rectangles, squares, and triangles all interspersed with 256 rich colors. The final part of the class is spent on creating personal screen savers which the students take great delight in.

The afternoon session (grades 7-9) deals exclusively with the techniques of programming in Turbo Pascal. The students are taught fundamental structures such as selection iteration and modular programming and are immediately creating games and graphics programs for their own enjoyment. The main focus of this class is to teach the fundamentals of logic for programming in a setting that is fun and interesting for this age group. Often the students will play each other's created games and sometimes challenge their teachers to do so, too. The student-teacher ratio provides a great opportunity for some individualized instruction as needed, also.

SATURDAY HISPANIC ACADEMY IN SCIENCE

This program, founded in 1989, serves Hispanic students from grades 9 to 12 who attend Bridgeport, Connecticut public schools. The majority of these students come from poor or low income families who, because of limited resources cannot provide the encouragement and guidance to keep the students in school, and ultimately to pursue a higher education. The program is funded in part by the United Way, Bridgeport area foundations, and the state of Connecticut. It is offered free of charge to the selected participants.

It has been projected that by the year 2000, Hispanics will be the largest minority group in the United States. On the other hand, the number of Hispanic students eligible for college has remained relatively low. An estimated 40% of Hispanic high school students do not graduate.

The program administrator of the Saturday Hispanic Academy in Science is Dr. Babu George and the computer science instructor is Domenick Pinto. Classes in computer science have centered upon learning programming techniques to solve algebra and geometry problems with all programs making full use of the rich colors and graphics available in Quick Basic. Applications tend to mesh with the ability level of the group with the emphasis being fun in learning. The group has been extremely responsive and

enjoyable to work with and in many cases students have asked to stay after class time has ended in order to complete a program.

INSTITUTE OF COMPUTER TECHNOLOGY

Sacred Heart University's **INSTITUTE of COMPUTER TECHNOLOGY** was established in 1994 as a computer training facility for the corporate and municipal employee. One and two day workshops (non-credit) are offered in areas such as Microsoft Word, Microsoft Works, Microsoft Excel, Visual Basic, C++, Powerpoint, Microsoft Access, and Foxpro. Several partnerships are in the works with one already established between the City of Bridgeport and the Institute. The Institute has already given three training sessions to municipal employees in Bridgeport with several more planned in the next few months. It is expected that this partnership will extend for a few years as software trends continue to change and new technology becomes available. All Institute classes are held in the Pentium lab with state-of-the-art technology such as an active matrix LCD panel for demonstrations, a color laser printer for graphics and presentations, and a totally hands-on one person, one computer atmosphere. The Institute was developed by and is directed by Domenick Pinto and is staffed by faculty members from the computer science area. The Institute is totally self-funding with the tuition received from its classes. Although the Institute has only been in existence for a few months, its reputation for quality programs has been well documented.

VOLUNTEER PROGRAMS

In addition to the above programs, Sacred Heart University has been very active in establishing volunteer programs for the community in various computer applications for inner city and suburban teens as well as for senior citizens.

A series of eight Quick Basic classes for eighth grade Honors Algebra classes in the town of Monroe, Connecticut was developed in the fall of 1993 by Domenick Pinto. The classes were two hours each and covered topics such as solving linear equations, factoring, use of the quadratic formula, and solving systems of equations. Students were bussed from Monroe to Sacred Heart on Friday mornings with no cost to the student and no salary to the instructor. The town of Monroe kindly provided the buses. This year the same classes will be offered to a parochial school in Monroe with only the cost of transportation to be provided by the school.

For several years, students in an eighth grade gifted program from the City Of Bridgeport have been attending free computer workshops at Sacred Heart University given by Sandra Honda, Associate Professor of Computer Science at the university. The workshops were primarily designed to promote computer literacy amongst the students as part of a volunteer program to promote technology in the inner city. Both programs have been and continue to be very well received.

Since 1992, Sandra Honda has also been involved with a volunteer program for retired seniors. In this program Sandra runs a workshop every Friday for eight weeks whereby computer literacy and a taste of word processing is introduced using WordPerfect for Windows. This program is maintained by a local community center and the participants are allowed to attend the sessions free of charge. It is a very popular program.

BENEFITS

The benefits of establishing so many varied partnerships with the community are vast. The recognition of Sacred Heart University as a caring, committed institution of higher learning has resulted in a large upswing in enrollment both globally throughout the university as well as locally within the computer science area. The newly established MCIS (Master of Science in Computer and Information Science) at Sacred Heart has been very successful after only one semester. (On a personal note one of the authors was even asked to be a computer lecturer on the QE2 this past spring for a two week transatlantic voyage to England, Ireland, and France with all expenses paid as a first class passenger.)

THE FUTURE

What future partnerships are in planning at Sacred Heart? Currently, Domenick Pinto is working on a $500,000 grant for submission to the National Science Foundation to establish a Multimedia Center complete with a multimedia classroom, authoring room, and multimedia lab for students in order to integrate sound, video, full motion, and computing to its full extent. If funded, this technology would be integrated into all of the programs listed above. The possibilities are endless. With dedication, hard work and commitment we can help to insure that young and old, rich and poor, gifted and slow, all have the opportunity to experience the technology of today in order to make for a better tomorrow.

Strategies for Restructuring IT Organizations

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ABSTRACT

This case study presents DePaul University's 18 month experience in restructuring its information technology division. The strategic realignment was an integral step in the university's own transformation toward a competitive and responsive institution. In July 1993 the university created a new division of University Planning and Information Technology (UPIT) and appointed a vice president to restructure the division. As the chief architect for this restructuring effort, I will discuss in this paper the impetus for change, the mission and goals of the new division, the organizational design and its implementation, and the process for restructuring.

Strategies for Restructuring IT Organizations

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Introduction

This case study presents DePaul University's 18 month experience in restructuring its information technology division. The strategic realignment was an integral step in the university's own transformation toward a competitive and responsive institution. In July 1993 the university created a new division of University Planning and Information Technology (UPIT) and appointed a vice president to restructure the division. As the chief architect for this restructuring effort, I will discuss in this paper the impetus for change, the mission and goals of the new division, the organizational design and its implementation, and the process for restructuring.

Impetus for Change

DePaul University serves 16,700 students at five campuses in the metropolitan Chicago area. Its seven colleges and schools have, over the past 97 years, emphasized excellence in instruction and responded well to the diverse educational needs of traditional undergraduates as well as working adults. In recent years the university has enjoyed successful strategic growth in academic reputation, increased market share of students, physical plant expansion, and successful fund-raising results. However, as the university moved forward, it became clear that a coherent information technology strategy would be crucial to its continued competitiveness in the marketplace.

Prior to July 1993, the university's information technology organization and resources were fragmented:

- Information Systems, reporting to the vice president for finance and business, supported administrative users via exclusively mainframe computing.
- Academic Computing Services, reporting to the academic vice president, supported faculty and student computing via clusters of mini-computers and wide-area networks.
- Telecommunications, reporting to the associate vice president for administration, serviced voice communications and owned most of the communication fibers.

There were several attempts to coordinate the computing directions and resources that fell short because of conflicting interests. As a consequence, over the years both academic

and administrative users became increasingly frustrated with divided standards for software, equipment, networks, and the absence of a unified, long-range view. A university task force attempted long-range planning to address these issues but was unable to overcome turf barriers.

In July 1993 DePaul 's new president, Rev. John P. Minogue, C.M., recognized the urgent need for change. He advocated workgroup computing and the use of technology to effect organizational transformation. A new division of University Planning and Information Technology was formed and a new vice president was appointed to lead the restructuring. Central to this new division was its role as an enabler and change agent to realign information technology initiatives with the university's strategic directions. There was also a mandate for efficient resource management.

The restructuring effort, taking place from July through September 1993, resulted in a lean, flattened, and cross-functional organization with new workgroups based upon function, new job responsibilities and new employee skill sets. Four units of different reporting lines and vastly different culture and organizational structure -- Information Systems, Academic Computing Services, Telecommunications, and Office of Institutional Planning and Research (reporting to vice president for planning) -- were consolidated into one division.

Several peripheral support functions (i.e., word processing, audio-visual production, student and staff computing purchase) were eliminated. Duplications in functions, such as networking, help desk, training, and software support were consolidated to achieve a single direction. Many new functions, such as business process reengineering and instructional technology, were added. The full-time headcount was reduced by 15%, from 92 to 78. The design for this division and strategies for restructuring are discussed in the following sections.

Organizational Design

The restructuring effort positioned the new division in a leadership role to enable the university transformation by performing four inter-related functions:

- o strategic planning,
- o process reengineering,
- o information resource and technology management, and
- o organizational learning.

The vice president's position was designed to carry out these functions in three overlapping roles as a strategic planner, chief information officer, and organizational development facilitator. The new division adopted a team-based, horizontal structure to achieve shared values, responsiveness to institutional needs, and significantly improved performance. Several design principles were considered. First, the division should affect the change process in a holistic manner, from strategic directions, process redesign, tools

and infrastructure, to learning and delivery. Second, a flat, cross-functional structure would encourage improved performance and responsiveness. Third, division-wide processes such as training and help desk support should be implemented as cross-functional services. Fourth, the structure should support movement toward workgroup computing.

Seven work groups were created to replace formerly large hierarchical departments:

Institutional Planning and Research supports strategic planning, policy analysis, decision support systems (DSS) and executive information systems (EIS).

Business Process Reengineering implements strategic priorities through process innovation, job redesign, organizational change, and technology strategies.

Information and Application Support implements redesigned processes with client server applications, information architecture.

Network and Telecommunications provides university wide connectivity in voice, data, and image through local and wide area networks and gateway services.

Academic Technology Development supports student and faculty computing for dial-in services, computing labs, and proactive consultation for curriculum innovations and creative use of instructional technology.

Systems and Operations provides consolidated systems support for both academic and administrative transactions.

UPIT Management Support enhances divisional effectiveness through strategic and financial planning, human resource management, internal and external communications, customer satisfaction studies, and divisional training programs.

A team approach was emphasized throughout the division, within and across work groups. A management team was formed consisting of the vice president and all the directors. Within each work group, hierarchical titles were replaced by team-oriented titles, such as *project leader* and *team leader*. Cross-functional teams are responsible for most divisional projects. In major projects, users now assume responsibilities as full members of the project team.

Workgroup computing envisions that users -- faculty, students, and staff -- will be able to develop competencies in the effective use and management of technologies and information to improve their work. Such an environment dictates that the new division manage and develop network infrastructure, information and application architecture, training, and reengineering that provides users with easy access to needed information.

During the reorganization at DePaul these principles demanded a different workforce and skill sets for the information technology division. The mainframe oriented workforce had to be transformed into professionals who were proficient in consulting, rapid application development, greater networking knowledge, effective problem solving and team work, broad organizational perspectives and ability to formulate integrated solutions.

Process for Restructuring

Restructuring occurred between July and September, 1993. Before it formally began the mission, goals, organizational design, and timetable for implementation were communicated to the members of the new division. The vice president met with individuals and groups, both inside and outside the division, to address concerns and provide support. All directors' positions (except the Director of Institutional Planning and Research) were opened for applications and interview process. The management team was in place by the end of July.

Each staff member went through a job analysis process involving data collection through skills questionnaire, functional resumes, and a 45-minute interview with a consultant with psychology training. This process helped to identify opportunities for employee skills enhancement; provide baseline data for job reassessment and reassignment; provide benchmark data for performance review, and enable future reorganization and resource planning. Using this data, the vice president consulted directors, human resource officers, and an information technology consultant to match skills profile with functional requirements for each workgoup. Many individuals were then assigned or offered new responsibilities according to their skills and aspirations. Some functions were eliminated and employees were transferred or outplaced. In order to minimize employee anxiety these steps were completed within the first four weeks of the reorganization.

Each director then had two months to develop specific job descriptions and an organizational structure for his or her workgroup. DePaul's human resources office subsequently reviewed each position and re-priced the salary according to market data.

Change Management Strategies

DePaul employed a variety of strategies to effect change in the new division as well as in the user community. Three sets of strategies are discussed below.

High Performance Management. To achieve the optimal effect from the restructuring, we designed and implemented a high performance management program. The management team collaborated with the human resource office and consulted the entire division in this process. This program integrates divisional directions with performance planning, the reward structure, and continuous training and development. A new performance appraisal system was initiated to introduce a set of ten performance

attributes as basis for organizational change. These ten attributes are: commitment to the mission, continuous quality improvement, creativity and innovation, customer focus, leadership, openness to change, result orientation, self-directed learning, self-empowerment, and teamwork and collaboration. Every member now participates in reviews every six months to evaluate past performance and to set new performance objectives.

Training and Development. In addition to setting performance expectations, the division adopted a cascading model for training and development. The management team lead and participated in a leadership learning forum which met for one day every six weeks to discuss processes for creativity, teamwork, and change. Participants included nearly one-third of the staff, across all levels and groups, to achieve better working relationships. In addition, three forms of training of technical skills were also implemented: Friday Forums, held every other week, showcase major divisional projects. Vendors conduct technology or product specific training. In addition, the vice president's office sponsors selected individuals for intensive certificate programs in "local area networks," "window applications," "telecommunications," and "client server strategies." Because self-directed training is now a performance standard, employees are encouraged to enroll in formal computer science or relevant courses offered by the university.

Partnering with Clients. To fully achieve the purpose of restructuring, changes needed to occur in the relationship between the division and the user community. Divisional priorities were set and communicated to the users. These included the timetable for networking, policies for software and hardware support, priorities for major application projects, and funding strategies for network and student computing plans. Two formal advisory bodies were established to improve communications and work plans. A faculty-based academic advisory group concentrates on policies and initiatives affecting teaching, research, and student computing. An IT customer service panel addresses emerging program and service unit needs. Several formal communication vehicles were created, including a quarterly newsletter *DePaul Net*Works*, a faculty guide to computing, and various brochures. Communication took place in both a formal and informal manner. Vendors also conducted quarterly forums to inform users about technology trends.

Progress to Date

What has the restructuring achieved over the past 18 months? Most noticeable is the fast deployment of network infrastructure with a much reduced staff and budget. Seventeen hundred users were brought into the DePaul Network during this period. This is an environment of Novell NetWare 4.01, Ethernet, TCP/IP on the network side; 486 Window/DOS for the desktop; Microsoft office suite (Word, Access, Excel, and PowerPoint), WordPerfect Office (Groupwise), Internet applications for productivity tools; Oracle, UNIX, MS Access, MS Visual Basic for the client server environment. In addition, the university's fund-raising process was redesigned and new phonathon and donor tracking systems were developed.

Building on this infrastructure, projects on the current drawing board include: student dial-in service and Internet access, campus-wide information systems using student kiosks, enterprise data architecture, the redesign of student-centered processes and systems, a new telephone switch at one campus and the wiring of residence halls for data and voice communication.

Lessons Learned

These changes could not be achieved in such a short timeframe without the restructuring. The restructuring provided a) a clear strategic vision, b) heightened productivity and expectations, c) an accelerated momentum for actions, and fundamentally, d) new dynamics for organizational and self renewal.

What have we learned from this experience? Although the restructuring and renewal have now become part of our continuous change process, our experiences so far are both rewarding and challenging.

Organizational Change Issues. Implementing radical change in itself is a daunting task. To achieve sustained results, there must be cascading sponsorship, extending from the president and executive level all the way through the information technology organization. This requires constant refocusing of strategic goals and careful selection of the management team. In building a team-oriented organization not only the staff members but also the leadership team has to be trained for team problem solving. Furthermore, once the organization is redesigned for change it is likely to go through self-renewal or further restructuring in response to additional changes in technology, elevation of skills, or user demand. A consequence is that planning assumptions for information technology are more difficult to set. A traditional, less dynamic planning model can become obsolete or counter-productive for fast-paced change.

Drastic change through strategic restructuring could achieve high results in short time, but a process for continuous restructuring or process improvement should be considered to sustain the benefits. A comprehensive organization design should be mapped out first to provide a framework for future actions. Otherwise, the forces and resistance to change could derail the plan. There are high costs, especially human costs, associated with restructuring. Employees experience tremendous anxiety and some may lose jobs. Managers experience burnout from dealing with adverse decisions. Few IT managers are prepared to carry out these tasks. Therefore the pace of change an IT organization undertakes depends largely on its willingness to endure pain and stress.

Human Resources Issues. Radical restructuring tends to freeze people's productivity and destroys the original intent of such endeavor. To balance the pace of change and desired level of productivity, interventions must be considered to bring each

individuals into a more human level of communication. Such communication should address fears, anxiety, aspirations, as well as perceptions.

For many employees restructuring can provide new opportunities and challenges; a chance to upgrade skills and move into new positions of responsibility. In this regard, leaders and managers in the IT organization have to address the human resource issues in a proactive manner, as to job redesign, outplacement, performance management, and reward structures. Unfortunately, few human resource offices in universities and colleges are equipped to support change management, let alone changes in the technology areas. Therefore, the IT organization has to quickly learn the advanced techniques and strategies for managing change.

Re-tooling is one of the most critical elements in restructuring IT organizations. Development of new skills, whether for a client server or network environment, can not be an option for a new organization but some new employees with those skills will also need to be recruited from outside the organization. A flattened, horizontal organization requires team work and, more importantly, strong individuals. Both self-directed learning and sponsorship for targeted training are required to achieve the culture of a learning organization.

However, retooling improves employability and employees with new skills are eagerly pursued by other employers, corporate or academic. The IT organization must anticipate attrition and devise retention strategies. Beyond competitive compensation, growth opportunities, systematic training, long-term performance management program, and opportunities for job rotations should be considered. Cross-training has to be a common practice to reduce the impact of staff turnover. In short, a holistic approach to performance management -- from recruiting, selection, evaluation, reward, training to retention -- has to be mapped out before restructuring takes place.

Relationships with Users. A changing IT organization disrupts the users' established relationship with former organizations, functions, and support staff. Confusion caused by realignment, if not addressed right away, could cause user frustration and anxiety. In addition, the fast paced deployment of technologies, applications, and policies heighten user expectations for service and quality. For many users the new environment demands more intense dialogue between both parties.

Communication should occur well in advance of change. There is never enough communication, despite repeated efforts, because new generations of users are continually brought into the technology environment. However, the fast pace of change can motivate users to participate in IT priority setting and learning. This could present a window of opportunity for IT professionals to serve as change agents -- to educate, persuade, and commit users. Formal arrangements for "information leaders" or "one-stop service liaisons" may improve service and communication with users at the departmental level. At the individual level, user training has to be redesigned to include department-wide training

when departments are brought on-line, more specific task-based courses, and on-line tutorials and self-paced training modules.

Conclusions

DePaul's effort for restructuring the IT organization has achieved remarkable results. Within eighteen months, the division of University Planning and Information Technology was able to build network infrastructure, brought 1700 users into a highly advanced network environment, reengineered major processes, and implemented client server solutions. These changes were accomplished by high performing cross-functional teams with new skills and a shared vision. A framework for organizational design, a thorough process for restructuring, a holistic performance management plan, and strategies for change management contributed to these positive results.

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